CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9910120267 DOC.DATE: 99/10/04 NOTARIZED: NO DOCKET #
FACIL:50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
AUTH.NAME AUTHOR AFFILIATION
HOVEY,R.J. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
Records Management Branch (Document Control Desk)

SUBJECT: Forwards response to NRC telcon questions re license amend request dtd 990727,proposing amend on one-time basis to modify TS 3.8.1.1 & TS 3.4.3 & 3.5.2 to extend allowed outage time for EDG from 72 h to 7 days.

DISTRIBUTION CODE: A001D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 10
TITLE: OR Submittal: General Distribution

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	CLAYTON,B	1	1	JABBOUR,K	1	1
	SC	1	1			
INTERNAL:	FILE CENTER 01	1	1	NRR/DSSA/SPLB	1	1
	NRR/DSSA/SRXB	1	1	NUDOCS-ABSTRACT	1	1
	OGC/RP	1	0			
EXTERNAL:	NOAC	1	1	NRC PDR	1	1

CATEGORY 1 DOCUMENT

NOTE TO ALL "RIDS" RECIPIENTS:
PLEASE HELP US TO REDUCE WASTE. TO HAVE YOUR NAME OR ORGANIZATION REMOVED FROM DISTRIBUTION LISTS OR REDUCE THE NUMBER OF COPIES RECEIVED BY YOU OR YOUR ORGANIZATION, CONTACT THE DOCUMENT CONTROL DESK (DCD) ON EXTENSION 415-2083

TOTAL NUMBER OF COPIES REQUIRED: LTTR 10 ENCL 9

FPL

OCT 04 1999

L-99-216
10 CFR 50.36
10 CFR 50.90

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

Re: Turkey Point Units 3
Docket Nos. 50-250
One Time Only Proposed License Amendment for Unit 3 Cycle 17
Emergency Diesel Generators Allowed Outage Time Extension
Response to Request for Additional Information

By letter L-99-162, dated July 27, 1999, Florida Power and Light Company (FPL) requested that Appendix A of Facility Operating License DPR-31 be amended on a one-time basis to modify Technical Specification (TS) 3.8.1.1, and TS 3.4.3 and 3.5.2 (conforming changes) to extend the Allowed Outage Time (AOT) for an inoperable Emergency Diesel Generator (EDG) from 72 hours to 7 days.

FPL staff participated in a telephone conference call with NRC staff to address questions regarding the above referenced license submittal. The response to these questions is attached.

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.

Should there be any questions on this request, please contact us.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

SM
Attachment

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

A061

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

STATE OF FLORIDA

COUNTY OF MIAMI-DADE

Subscribed and sworn to before me this

4th day of October, 1999,

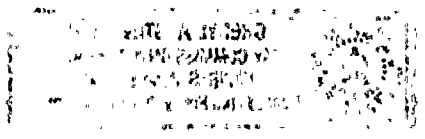
by R. J. Hovey is personally known to me.

Cheryl A. Stevenson

Name of Notary Public - State of Florida

CHERYL A. STEVENSON
MY COMMISSION # CC 564017
EXPIRES: June 19, 2000
Bonded Thru Notary Public Underwriters

(Print, type or stamp Commissioned Name of Notary Public)



Attachment

During telephone conversations with the NRC, the staff requested additional information regarding the One Time Only Proposed License Amendment for Unit 3 Cycle 17 Emergency Diesel Generators (EDG) Allowed Outage Time (AOT) Extension submitted on July 27, 1999. The following provides additional information to clarify the above referenced submittal:

1. *Discuss the standards or processes by which the FPL Reliability Risk Assessment Group (RRAG) controlled modifications to the Turkey Point Probabilistic Safety Assessment (PSA) models in 1993, 1994, and 1995. Do the standards or processes include 10 CFR Appendix B requirements or other requirements? Also, discuss the processes employed to assure quality of the baseline PSA including internal or external peer reviews and any follow up to the review findings.*

   Since the Nuclear Regulatory Commission (NRC) approved the Individual Plant Examination (IPE) on October 15, 1992, the Turkey Point PSA model was updated in 1993, 1995, and 1997. The first update to the Turkey Point PSA models was performed by Science Applications International Corporation (SAIC) contractors in 1993. For the subsequent updates, FPL adapted SAIC's processes into FPL standards (desktop procedures).

   Since the approval of the IPE, the FPL RRAG has maintained the (PSA) models consistent with the current plant configuration such that they are considered "living" PSA models. The PSA models are updated for different reasons, including plant changes and modifications, procedure changes, accrual of new plant data, discovery of modeling errors, advances in PSA technology, and issuance of new industry/ PSA standards. The update process ensures that the applicable changes are implemented and documented in a timely manner to ensure that risk analyses performed in support of plant operation reflect the plant configuration, operating philosophy, and transient and component failure history. The PSA maintenance and update process is described in detail in the FPL RRAG Standard STD-R-002, PSA Update and Maintenance Procedure.

   Standard STD-R-002 defines two different types of periodic updates: 1) a data analysis update, and 2) a model update. The data analysis update is performed every five years. Model updates consist of either single or multiple PSA changes and are performed at a frequency dependent on the estimated impact of the accumulated changes. Guidelines to determine the need for a model update are provided in the standard.

   The RRAG is part of the FPL Engineering department with procedures in accordance with the Engineering Department's Quality Instructions. Procedures, risk assessment documentation and associated records are controlled and retained as QA records.

The original development of PSA was classified and performed as Quality-Related under the FPL 10 CFR Appendix B quality assurance program. Subsequent data updates and risk assessments were performed using PSA methods and models. The revisions and applications of the PSA models and associated databases continued to be handled as Quality-Related. This includes PSA specific procedures and follows the independent review process for all model changes and applications. Risk assessments are performed by one individual, independently reviewed by another, and approved by the Department Head or designee.

The computer software is also controlled and maintained (classified as Quality-Related) under the quality assurance program with procedures in accordance with the Engineering's Quality Instructions. RRAG's standard STD-R-001, PSA Software Control Procedure, provides guidance for computer software control and establishes specific requirements for the use of PSA software, the completion of the associated documentation, and directions on processing changes to software and hardware. Furthermore, it documents the RRAG policy on PSA software safety classification, 10 CFR 50.59 applicability, software deficiency resolution, training requirements, verification and validation requirements, control of batch files and macros, and Quality Assurance (QA) controls for PSA processes and outputs.

Standard STD-R-001 provides the policy on QA control of the PSA processes and outputs. QA requirements for Quality-Related PSA analytical processes and output documents consist of controlling PSA software as required by Standard STD-R-001 and requiring independent review of all aspects of the model development and its Quality Related applications. Model developments and updates are documented in reports and sent to Document Control. Compliance with 10 CFR 50 Appendix B consists of: 1) controlling software used for PSA model development and for applications which are Quality-Related as defined in STD-R-001, and 2) requiring independent reviews of each subtask while developing/revising the PSA model, and of each Quality-Related application thereafter.

The Turkey Point PSA baseline model is an updated version of the original Turkey Point IPE submittal. Prior to the IPE being submitted to the NRC, a peer review was conducted by an outside contractor. All review findings were addressed prior to the IPE submittal to NRC. The Turkey Point IPE was submitted to the NRC on June 25, 1991. It was reviewed extensively by the NRC and NRC contractors. It received "Step 1" and "Step 2" reviews. Following the reviews, the Turkey Point IPE was revised in 1992. FPL received the NRC Safety Evaluation Report (SER) for the Turkey Point IPE on October 15, 1992. The NRC concluded that the process used to develop the Turkey Point PSA was acceptable in meeting the intent of Generic Letter 88-20.

There have been no additional external peer reviews because the changes that were implemented are considered not extensive. However, all updates completed since the initial IPE submittal have been reviewed, independently verified, and documented via Engineering calculations and Engineering Evaluations in accordance with the FPL Engineering Department's Quality Instructions and RRAG standards. Turkey Point intends to participate in the Westinghouse Owners Group Industry Certification program to be scheduled in 2001.

2. *Discuss the RRAG's software validation and verification for quality assurance. Do the procedures conform to 10 CFR 50 Appendix B requirements or other requirements?*

All programs that process PSA model inputs are verified and validated as needed. The RRAG policy on verification and validation of QA controlled/procured software, as well as the verification and validation for software and computers when used for Quality-Related applications is described in RRAG Standard STD-R-001.

Software verification is the process used to ensure the software meets the software requirement specifications. The PSA software that is procured with a QA option and is developed under a 10 CFR 50 Appendix B QA program does not require further software verification by the RRAG. However, PSA software which is not procured with a QA option can be verified by comparison of results to previously approved software.

Validation of software is performed for different conditions such as: 1) a new installation of software, 2) any new database or configuration file changes issued by the RRAG, 3) unreasonable results, 4) computer configuration (software, hardware), and 5) use of software for Quality-Related applications for the first time.

Validation requirements for each Quality Related PSA program are documented in a Software Verification/Validation Plan (SVVP) procedure. These requirements include the method of validation, the frequency of validation, the documentation required and the acceptance criteria. A SVVP procedure is submitted for each program. Actual validation benchmark problems can exercise more than one program, but a separate Software Verification/ Validation Report (SVVR) must be submitted for each program. Each SVVP procedure and SVVR is independently reviewed and then approved by the RRAG supervisor. Software validation tests both the software and the hardware. Validation tests are also performed following any significant change in the hardware, operating system, or program or if the validation period established in the SVVP procedure expires. Sample formats for the SVVP and SVVR are provided in the Engineering Quality Instruction (conforming to the pertinent 10 CFR 50 Appendix B requirements) for computer software control.

3. *In the Tier 2 discussion, it is stated that on line replacement of the radiators will not be scheduled during the South Florida hurricane season and that the 1999 South Florida hurricane season begins on June 1 and ends on November 30. Explain the possible intent to replace the radiators on-line during November.*

   There is no intent to replace the EDG radiators during the month of November 1999.

4. *Additional information on compensatory actions*

   FPL will be taking various compensatory actions to minimize the potential for a Loss of Offsite Power event (LOOP) during the 7-day EDG outage. The potential for an external, weather-related LOOP event to occur during the proposed 7-day EDG outage will be minimized by scheduling the radiator replacement activity outside the South Florida Hurricane season, or when no adverse weather is expected. Therefore, voluntary entry into an LCO action statement will not be scheduled when adverse weather is expected.

   The stability of the offsite electrical distribution system will be considered by notifying in advance the appropriate system personnel for the 7-day EDG outage. Specifically, the Turkey Point Work Controls department notifies the load dispatcher (approximately 6 weeks) in advance for any scheduled outages that increase the risk of system instability. Additionally, the Turkey Point management communicates to the load dispatcher any scheduled load threatening surveillance that could impact the electrical system (part of the morning phone call with the sites and system load dispatcher). The load dispatcher may at times request Turkey Point to avoid performing any load threatening tasks that would increase the risk of creating system instability during peak load demand periods.

   During the EDG radiator replacement outage the potential for LOOP events to occur will be minimized by a) postponing the performance of any load threatening surveillance tests until after the affected EDG is returned to service and b) administratively controlling personnel access to the Turkey Point switchyard.

   Ropes and appropriate signs restrict the access to the sensitive relay area. Posted signs require that the personnel that need to gain access need to contact the System Protection Department or the Nuclear Plant Supervisor. 0-ADM 701, Control of Plant Work Activities, addresses the request for access to different sensitive areas by requiring the individual directly in charge of the job in the relay area to complete the Red Sheet. The Red Sheet is a work evaluation form, 0-ADM-701 Attachment 7, which requires the approval of not only the job supervisor/ Assistant Nuclear Plant Supervisor and the Nuclear Plant Supervisor, but the approval of the Plant General Manager. The Red Sheet evaluation is performed immediately prior to commencing work on sensitive systems (including the relay area) and is valid for a designated period without permitting any substantial break in work.

FPL will ensure, in accordance with 0-ADM-210, On-Line Maintenance/Work Coordination, that the systems, components, and devices that depend on the redundant EDG as a source of onsite power are operable prior to removing the EDG from service. The EDG outage task activities to be performed on-line will follow guidance outlined in 0-ADM-210. This procedure provides guidance for on-line maintenance activities to ensure adequate coordination between the Operations and Maintenance departments. Furthermore, it provides instructions to ensure that the on-line maintenance is conducted in an effective, consistent manner in accordance with the operating licenses, plant procedures, and applicable regulatory requirements.

Distribution Sheet

11/23/99

Priority: Normal

From: Elaine Walker

Action Recipients:	Copies:	
K Jabbour	1	Not Found

Internal Recipients:		
OGC/RP	1	Not Found
OE	1	Not Found
NRR/DSSA/SPLB	1	Not Found
NRR/DLPM/LPD3	1	Not Found
J Segala	1	Not Found
FILE CENTER 01	1	Not Found
ACRS	1	Not Found

External Recipients:		
NRC PDR	1	Not Found

Total Copies: 9

Item: ADAMS Document
Library: ML_ADAMS^HQNTAD01
ID: 993400399

Subject:
Application for amends to licenses DPR-31 & DPR-41,to modify TS 3/4.6.3,3/4.6.6 & 3/4.7 .5 re laboratory testing of nuclear grade activated charcioal

Body:
PDR ADOCK 05000250 P

Docket: 05000250, Notes: N/A

Docket: 05000251, Notes: N/A

FPL

NOV 23 1999

L-99-239
10 CFR §50.90

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

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
Proposed License Amendments
Laboratory Testing of Nuclear Grade Activated Charcoal

In accordance with 10 CFR §50.90, Florida Power and Light Company (FPL) requests that Appendix A of Facility Operating Licenses DPR-31 and DPR-41 be amended to modify Technical Specification (TS) 3/4.6.3, Emergency Containment Filtering System, TS 3/4.6.6, Post Accident Containment Vent System, and TS 3/4.7.5, Control Room Emergency Ventilation System. The proposed license amendments request that charcoal samples from these filter units be tested in accordance with the American Society for Testing and Materials (ASTM) Standard D3803-1989, Standard Test Method for Nuclear-Grade Activated Carbon.

The proposed license amendments are submitted in response to Generic Letter (GL) 99-02, Laboratory Testing of Nuclear-Grade Activated Charcoal, which requires that ASTM D3803-1989 be used for testing both new and used charcoal in engineered safety feature (ESF) applications. A description of the amendments request is provided in Attachment 1. FPL has determined that the proposed license amendments do not involve a significant hazards consideration pursuant to 10 CFR §50.92. The no significant hazards determination in support of the proposed TS changes is provided in Attachment 2. Attachment 3 provides the proposed revised TS pages.

The next laboratory surveillance test for Engineered Safety Feature (ESF) charcoal filters at Turkey Point is required to be performed in March of 2000. Assuming the proposed amendments are approved or specific enforcement discretion is granted prior to that time, FPL will conduct the charcoal surveillance tests in accordance with ASTM D3803-1989. Any replacement charcoal will also meet the 1989 ASTM standard. FPL is therefore requesting the approval of these amendments by February 14, 2000, to support this schedule.

GL 99-02 states that the Staff will exercise enforcement discretion for licensees in Group 2 to eliminate unnecessary testing of charcoal samples to both ASTM D3803-1989 and the current TS testing protocol during the period of the time between issuance of the GL and approval of the TS amendment. According to the terms of GL 99-02, Turkey Point is a Group 2 plant. In the event that the Staff does not approve the proposed license amendments by February 14, 2000, FPL hereby requests the Staff to issue a notice of enforcement discretion that excuses FPL from performing charcoal testing using the current TS testing protocol and that permits FPL to test charcoal samples using the ASTM D3803-1989 standard in accordance with the acceptance criteria presented in this submittal.

A081

PDR ADOCK 05000250

9934003 99

L-99-239

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments
Laboratory Testing of Nuclear Grade Activated Charcoal

In accordance with 10 CFR §50.91(b), a copy of the proposed license amendment 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.

Should there be any questions, please contact us.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

SM/MG

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

L-99-239

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments
Laboratory Testing of Nuclear Grade Activated Charcoal

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.

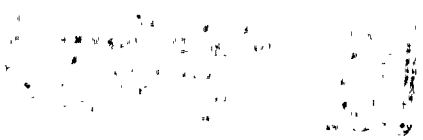
R. J. Hovey

Subscribed and sworn to before me this
22nd day of November 1999.
Cheryl A. Stevenson

Name of Notary Public (Type or Print)

GHERYL A. STEVENSON
MY COMMISSION # CC 564017
EXPIRES: June 19, 2000
Bonded Thru Notary Public Underwriters

R. J. Hovey is personally known to me.



ATTACHMENT 1

DESCRIPTION OF AMENDMENTS REQUEST

1.0 Background and Purpose

Florida Power and Light Company (FPL) requests that Appendix A of Facility Operating Licenses DPR-31 and DPR-41 be amended to modify Technical Specification (TS) 3/4.6.3, Emergency Containment Filtering System, TS 3/4.6.6, Post Accident Containment Vent System, and TS 3/4.7.5, Control Room Emergency Ventilation System in response to Generic Letter (GL) 99-02. GL 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, requests that licensees of operating power reactors amend their TS to reference either the American Society for Testing and Materials (ASTM) Standard D3803-1989, "Standard Test Method for Nuclear–Grade Activated Carbon," or propose an alternate test protocol.

Periodic laboratory analysis of activated charcoal used in the engineered safety features (ESF) ventilation systems of nuclear power plants is required to verify its ability to remove radioiodine from air during normal operation and during postulated accident conditions. Difficulty in achieving accurate and consistent test results has been a long-standing issue with the NRC and the nuclear industry due to the sensitivity of the adsorption mechanism to variations in the process conditions. Interlaboratory comparisons conducted since the early 1980's have demonstrated that the results for these analyses can vary significantly between the various testing laboratories. This disparity has raised concerns regarding the adequacy of these analyses and the specifications used to interpret their results. The NRC staff considers the ASTM D3803-1989 to be the most accurate and most realistic protocol for testing charcoal in ESF ventilation systems because it offers the greatest assurance of accurately and consistently determining the capability of the charcoal. The staff considers that the ASTM D3803-1989 standard provides a consistent and reproducible test method for evaluating the adequacy of charcoal.

The purpose of the proposed license amendments is to adopt ASTM D3803-1989 as the protocol for conducting laboratory tests on both new and used charcoal in the emergency containment, post accident containment vent, and control room emergency ventilation system filtering units which are the affected filter units at Turkey Point.

2.0 System Description

The filter units affected by the proposed TS changes include the emergency containment filters, control room emergency ventilation filters, and the post accident containment ventilation filter.

Emergency Containment Filters (ECFs)

Each reactor at Turkey Point is provided with three ECF units located inside containment. Each unit contains a demister bank, a high efficiency particulate air (HEPA) filter bank, a charcoal filter bank and a fan. The charcoal filter bank in each ECF is comprised of 112 standard Type II tray-type adsorber cells having a nominal face velocity of 40 feet per minute (fpm) and a gas residence time of 0.25 seconds when operated at the design volumetric air flow rate of 333 cubic feet per minute (cfm). The filter units are designed to draw air from the lower levels of containment during an accident and discharge it to the upper regions of the containment building. They were installed to reduce the iodine concentration in the containment atmosphere following a maximum hypothetical accident (MHA) such that the offsite dose at the site boundary would not exceed 10 CFR 100 guidelines.

The air filtering capacity used to satisfy the design basis is determined from the following conditions:

a) Postulated iodine release to the containment is calculated with the ORIGEN2 code using TID 14844 release fractions at a power level of 2346 MW_t, based on the equilibrium fission product inventory from a 24 GWD/MTU, two region, equilibrium cycle.

b) Twenty-five percent of the total core iodine inventory is available for leakage from the containment. This assumes 50% of the total core iodine is released to containment and 50% of this activity immediately plates out on the containment walls.

c) The containment leak-rate for the first 24 hours is 0.25% per day and 0.125% per day thereafter.

d) The iodine in the containment atmosphere is assumed to be comprised of 4% methyl iodide, 91% elemental iodine and 5% particulate iodine.

Operation of two ECFs for 2 hours is credited in the offsite and control room dose analyses associated with the large break Loss of Coolant Accident (LOCA). A removal efficiency of 90% is assumed for elemental iodine. The removal efficiency for methyl iodide is assumed to be 30%.

Operation of the ECFs is also credited in the offsite dose calculation associated with a control rod ejection accident.

Control Room Emergency Ventilation Filters

The control room HVAC charcoal filters are located in the common emergency air intake duct. They are placed into service upon detection of high radioactivity in the normal control room HVAC air intake path. The high radioactivity signal causes isolation dampers in the normal intake duct to close and isolation dampers in the emergency air intake duct to open. An air supply fan draws a limited quantity of outside air through the charcoal filters along with air recirculated from the control room to maintain positive pressure in the control room envelope. The charcoal filter bank is comprised of 3 Type II tray-type adsorber cells to accommodate the 1000 cfm control room HVAC design flow.

Operation of the control room emergency ventilation system is credited in the dose analysis associated with the large break LOCA. A removal efficiency of 95% is assumed for both elemental iodine and methyl iodide in the dose analysis.

Post Accident Containment Ventilation (PACV) Filter

Turkey Point uses a common post accident containment vent system to facilitate controlled venting of either reactor containment building through HEPA and charcoal filters to the waste gas tanks and to the atmosphere during post-accident conditions. The system provides the primary means of controlling containment hydrogen concentration during accidents and is placed in service when the containment hydrogen concentration reaches 3.0 volume percent. Service air is used to establish a low containment pressure under these conditions and enables a controlled flow rate to be maintained through the vent and vent filters. The design flow rate for the PACV system is 55 cfm.

The PACV system uses a standard 12" x 12" x 5 ⅞" charcoal filter in a bag-in/bag-out type housing. The filter is a Type IV charcoal adsorber bank containing 8 1-inch thick charcoal beds arranged in a V-Bank configuration. The filter has a nominal face velocity of 14 fpm and a gas residence time of 0.35 seconds at the 55 cfm PACV design flow rate.

3.0 Current Technical Specification Requirements

TS 3.6.3 requires that three emergency containment filtering units (ECFs) be operable in Modes 1, 2, 3, and 4. If one of the required ECFs become inoperable, it must be returned to operable status within 7 days or the plant must be brought to hot standby conditions within the next 6 hours and to cold shutdown conditions within the following 30 hours. Various surveillance requirements are listed in Section 4.6.3 of the TS to demonstrate filter unit operability. Surveillance requirement 4.6.3b.2 specifies the charcoal testing that must be performed to demonstrate operability. Testing is required at least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following operational exposure of filters to effluents from painting, fire, or chemical release or (3) after every 720 hours of system operation. The test requires verifying within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with applicable portions of Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and performed in accordance with ANSI N-510-1975, meets the acceptance criteria of greater than 99.9% removal of elemental iodine; and that any charcoal failing to meet this criteria be replaced with charcoal that meets or exceeds the criteria of position C.6.a of Regulatory Guide 1.52, Revision 2.

TS 3/4.7.5 requires that the control room emergency ventilation system be operable in all plant operating modes. If the system becomes inoperable in Modes 1, 2, 3, or 4, all movement of fuel in the spent fuel pool must be suspended and the system must be restored to operable status within 84 hours. If the system can not be restored to operable status within the 84-hour limit, the plant must be brought to hot standby conditions within the next 6 hours and to cold shutdown conditions within the following 30 hours. If the action applies to both units simultaneously, the units must be brought to hot standby conditions within 12 hours and to cold shutdown conditions within the following 30 hours.

If the control room emergency ventilation system becomes inoperable in Modes 5 or 6, all operations involving core alteration, movement of fuel in the spent fuel pool, or positive reactivity changes, must be suspended. This action applies to both units simultaneously.

TS 3/4.7.5 describes the various surveillance tests that must be performed to demonstrate operability of the control room emergency ventilation system. Surveillance requirement 4.7.5c specifies the charcoal testing that must be performed to demonstrate operability. Testing is required at least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following operational exposure of filters to effluents from painting, fire, or chemical release or (3) after every 720 hours of system operation. TS surveillance requirement 4.7.5c.2 requires verifying within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and performed in accordance with ANSI N-510-1975, meets the acceptance criteria for methyl iodide removal efficiency of greater than or equal to 99% or the charcoal be replaced with charcoal that meets or exceeds the criteria of position C.6.a of Regulatory Guide 1.52, Revision 2.

TS 3/4.6.6 requires that the post accident containment vent (PACV) system be operable in Modes 1 and 2. If the PACV system becomes inoperable, it must be returned to operable status within 7 days or the plant must be brought to hot standby conditions within 6 hours. TS surveillance requirement 4.6.6b specifies the charcoal testing that must be performed to demonstrate operability. Testing is required at least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following operational exposure of filters to effluents from painting, fire, or chemical release or (3) after every 720 hours of system operation or (4) after replacement of a filter. TS surveillance requirement 4.6.6b.2 requires verifying within 31 days after removal, that a laboratory analysis of a representative carbon sample performed in accordance with ANSI N-510-1975, meets the methyl iodide removal criteria of greater than or equal to 90% and that any charcoal failing to meet the criteria be replaced with charcoal that meets or exceeds the criteria of position C.6.a of Regulatory Guide 1.52, Revision 2.

4.0 Design Basis Requirements and Safety Analysis Impact

The ECFs, control room emergency ventilation filter, and PACV filter were included as engineered safety features at Turkey Point to mitigate the consequences of postulated accidents by removing radioactive material from the containment and control room atmospheres. The charcoal filters were specifically installed to remove radioactive iodine and methyl iodide from these locations and maintain post-accident doses within regulatory limits.

The design basis of the ECFs is to provide sufficient iodine removal capability from the containment atmosphere during radiological accidents to maintain offsite doses within 10 CFR 100 limits and control room doses within limits specified in Criterion 19, "Control Room," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR 50. The large break Loss of Coolant Accident (LOCA) is the most limiting design basis event for the ECFs. The amount of iodine released to the containment during a design basis LOCA is based on the assumptions provided in Atomic Energy Commission Technical Information Document TID-14844. The capacity of the system is such that the released iodine can be adsorbed by two of the three ECF Units. The operation of two ECFs is credited in the offsite and control room dose analyses associated with:

a) Large break Loss of Coolant Accident, and
b) Control Rod Ejection Accident.

A removal efficiency of 90% is assumed for elemental iodine in these analyses. The removal efficiency for methyl iodide is assumed to be 30%. These removal efficiencies are based on the guidance that is provided in Table 2 of Regulatory Guide 1.52 for 2-inch thick charcoal beds designed to operate inside containment.

The design basis of the control room emergency ventilation system is to mitigate the consequences of an accident by ensuring that the control room will remain habitable during and following all credible accident conditions. General Design Criterion 19, "Control Room," contains the dose limits that must be met by the system during radiological accidents. Operation of the control room emergency ventilation system is credited in the dose analysis associated with a large break LOCA. A removal efficiency of 95% is assumed for both elemental iodine and methyl iodide in the analysis.

The PACV system is not specifically modeled in any of the plant safety analyses. A methyl iodide removal efficiency of 90%, however, is referenced in the TS for surveillance testing purposes. The requirement was added to the TS in the early 1980's and was derived from the Westinghouse standard TS that were in place in the mid-1970's.

The adoption of ASTM D3803-1989 for laboratory analysis of the above charcoal filters does not impact the design bases of the ESF systems, alter post-accident source terms, or modify the removal efficiencies credited in the dose calculations. Although the Turkey Point accident analyses credit both elemental iodine and methyl iodide retention in the ESF filtration systems, the ASTM standard only provides a measurement of the charcoal's ability to retain methyl iodide. Testing charcoal solely for methyl iodide retention, however, is considered to provide a valid measure of the charcoal's ability to remove radioiodine in any chemical form from the attendant plant gas stream. Supplemental testing for elemental iodine retention is

not considered necessary to verify the charcoal's ability to fulfill its design basis function. This position is bolstered by the NRC contention that elemental iodine released to the containment atmosphere will be aggressively removed through the use of the containment spray system such that the only form of iodine anticipated to require treatment by the ESF charcoal filters is methyl iodide. Additionally, an elemental iodine test protocol that provides reliable and reproducible results, and provides the ability to adequately discriminate between good and bad charcoal, has not been endorsed by the NRC.

Based on the above, the proposed changes in test method and acceptance criteria do not impact the plant safety analyses.

5.0 Technical Specification Change Request

The following changes to TS Surveillance Requirements 4.6.3b.2, 4.7.5c.2, and 4.6.6b.2 are requested for Turkey Point Units 3 and 4. Text deletions are shown in strikeout. Proposed text additions are shown in **bold:**

a) TS 3/4.6.3, Emergency Containment Filtering System:
Revise the SURVEILLANCE REQUIREMENT 4.6.3b.2 to read as follows:

"Verifying within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with applicable portions of Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and performed in accordance with ~~ANSI N 510-1975, meets the acceptance criteria of greater than 99.9% removal of elemental iodine~~ **ASTM D3803-1989 at 30 °C and 95% relative humidity, meets the methyl iodide penetration criteria of less than 35%;** and that any charcoal failing to meet this criteria be replaced with charcoal that meets or exceeds the ~~criteria of position C.6.a of Regulatory Guide 1.52, Rev. 2~~ **stated performance requirement;** and"

Justification:

The requested change updates the surveillance requirement to reflect the charcoal test standard imposed by GL 99-02. Since the new test standard is based on methyl iodide penetration rather than elemental iodine removal efficiency, a conforming change is made to reflect the appropriate test agent. This includes a change in the test acceptance criteria due to the change in the parameter used to measure filter effectiveness. The existing TS measured the charcoal filter decontamination efficiency, which is a measure, in percent, of the ability of an adsorbent to remove a specific contaminant gas from an air, or gas stream under specified conditions. The proposed TS provides acceptance criteria in terms of penetration. Filter penetration represents the amount of leakage through or around, an adsorber when tested with a challenge agent of known characteristics under known conditions. Filter penetration is expressed as a percentage of the initial challenge agent concentration. The following mathematical formula for determining the appropriate penetration acceptance criteria is provided in Enclosure 2 of the GL.

$$\text{Allowable Penetration} = \frac{[100\% - \text{Methyl Iodide Efficiency in Plant Safety Analysis}]}{\text{Safety Factor}}$$

The GL enclosure notes that the staff will accept a safety factor of greater than or equal to 2 when ASTM D3803-1989 is used with 30 °C (86 °F) and 95% relative humidity (or 70% relative humidity with humidity control). Given that a methyl iodide removal efficiency of 30% was assumed for the ECFs in the LOCA and control room dose analyses, an allowable methyl iodide penetration of less than 35% has been established for the surveillance test.

The ASTM standard does not include provisions for measuring the charcoal removal efficiency for elemental iodine. Consequently, any previous commitments relative to elemental iodine testing are superseded by the adoption of ASTM D3803-1989.

b) TS 3/4.7.5, Control Room Emergency Ventilation System:
Revise SURVEILLANCE REQUIREMENT 4.7.5c.2 to read as follows:

"Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and analyzed per ~~ANSI N 510-1975, meets the criteria for methyl iodine removal efficiency of greater or equal to 99%~~ **ASTM D3803-1989 at 30 °C and 95% relative humidity, meets the methyl iodide penetration criteria of less than 2.5%** or the charcoal be replaced with charcoal that meets or exceeds the **stated performance requirement** ~~criteria of position C.6.a. of Regulatory Guide 1.52 (Revision 2)~~, and"

Justification:

The requested change updates the surveillance requirement to reflect the charcoal test standard imposed by GL 99-02. Since the new test standard is based on methyl iodide penetration rather than methyl iodide removal, a conforming change is made to reflect the appropriate test acceptance criteria. A maximum allowable penetration of 2.5% is established for the control room emergency filters using the equation referenced in part a) above, and a methyl iodide removal efficiency of 95% as assumed in the safety analysis. Performing the charcoal test at a relative humidity of 95% will bound all moisture conditions expected in the filter inlet air stream.

c) TS 3/4.6.6, Post Accident Containment Vent System:
Revise SURVEILLANCE REQUIREMENT 4.6.6b.2 to read as follows:

"Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample performed in accordance with ~~ANSI N 510-1975, meets the methyl iodine removal criteria of greater than or equal to 90%~~ **ASTM D3803-1989 at 30 °C and 95% relative humidity, meets the methyl iodide penetration criteria of less than 10%** and that any charcoal failing to meet the criteria be replaced with charcoal that meets or exceeds the **stated performance requirement** ~~criteria of Position C.6.a. of Regulatory Guide 1.52, Revision 2~~."

Justification:

The requested change updates the surveillance requirement to reflect the charcoal test standard imposed by GL 99-02. Since the new test standard is based on methyl iodide penetration rather than methyl iodide removal, a conforming change is made to reflect the appropriate test acceptance criteria. It should be noted that the PACV system is not modeled in any of the plant accident analyses so a specific methyl iodide removal efficiency is not rigorously documented for the charcoal filter bank. In the absence of a specific analysis value, the existing TS removal efficiency is converted to "percent penetration" and used to establish the maximum allowable penetration acceptance criteria.

6.0 Conclusion

The proposed revision to the TS references the new test standard, and the appropriate acceptance criteria for maximum allowable methyl iodide penetration that must be met to satisfy the surveillance requirement. The penetration acceptance criteria proposed for the emergency containment filters (ECFs) and the control room emergency ventilation filter are based on the methyl iodide removal efficiencies assumed in the plant safety analysis with a safety factor of 2. A methyl iodide penetration acceptance criterion is not currently included in the ECF TS so the test requirement represents a new license commitment. Methyl iodide testing, however, is included as part of the control room charcoal filter surveillance test. The proposed revision reduces the safety factor from its current value of 5 down to a value of 2 to coincide with a reduction in the inherent inaccuracies associated with laboratory test standards.

The post accident containment vent (PACV) filter acceptance criteria for maximum allowable methyl iodide penetration included in this license amendments request is derived directly from the removal efficiency for methyl iodide that is published in the current plant TS, without a change in specification safety factor.

Testing representative samples of charcoal used in the Emergency Containment Filters, Post Accident Containment Vent, and Control Room Emergency Ventilation systems in accordance with ASTM D3803-1989 provides the most accurate and reproducible test method available for monitoring the degradation of charcoal over time. The extensive industry experience and the requested action cited in GL 99-02 provide the basis for incorporating ASTM D3803-1989 into Turkey Point's TS.

ATTACHMENT 2

NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Nuclear Regulatory Commission has provided standards for determining whether a significant safety hazards consideration exists (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 amendments.

(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 probability of occurrence of an accident previously evaluated for Turkey Point is not altered by the proposed TS changes because no physical modifications are being made to the plant.

The proposed change requires that new and used charcoal in the plant engineered safety feature (ESF) ventilation systems be tested in accordance with ASTM D3803-1989, at a temperature of 30 °C and a relative humidity of 95%. The use of a new or different test standard to satisfy the charcoal surveillance test requirement does not change the radiological consequences of any previously evaluated accident. The adoption of the ASTM standard will, however, require that future charcoal samples from the emergency containment filters be tested for methyl iodide removal rather than elemental iodine removal as permitted by previous test protocols. The revised test method will provide a more uniform test program for the ESF filters, and will not adversely affect the filters affinity for elemental iodine removal. The adoption of the ASTM standard for laboratory analysis of the ESF charcoal does not impact the design bases of the ESF systems, alter post-accident source terms, or modify the removal efficiencies credited in the facility dose calculations.

The ASTM standard is very stringent and has been shown to provide a more reliable measure of the ability of charcoal to fulfill its intended design function, i.e., to remove radioiodine in any chemical form from the attendant plant gas stream, than previous test protocols. Consequently, the adoption of the ASTM standard for laboratory analysis of the ESF charcoal will ensure that Turkey Point is operated in a manner consistent with the licensing basis of the facility as it relates to the protection of the public and the control room operators during radiological accidents.

Based on the above, it is concluded that the proposed amendment does not involve a significant increase in the probability or consequences of any accident previously evaluated.

(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 previously evaluated.**

The proposed change does not create a new or different type of accident for Turkey Point because no physical plant changes are being made, and no compensatory measures are imposed that would create a new failure scenario. The proposed change only imposes a more stringent surveillance requirement for both new and used charcoal in the plant ESF ventilation systems. Since no new failure modes are associated with the proposed changes, the activity does not create the possibility of a new or different kind of accident from any 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 proposed license amendment adopts a more stringent standard for performing laboratory surveillance tests on both new and used charcoal in the ESF ventilation systems. Given the increased accuracy of the proposed test standard, the amendment also supports the adoption of revised acceptance criteria having a lower safety factor to the plant safety analysis limits. The composite change does not impact the design bases of the ESF systems, alter post-accident source terms, or modify the removal efficiencies credited in the facility dose calculations

The margin of safety associated with operation of the ESF ventilation systems is established by the facility dose calculations and the acceptance criteria for system performance defined in 10 CFR 100 and Criterion 19 of Appendix A to 10 CFR 50. The proposed amendments will not change this acceptance criteria nor the calculated dose limits used to establish the current plant-licensing basis.

Summary

Based on the above discussion, FPL has determined that the proposed amendments 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; and therefore the proposed changes do not involve a significant safety hazards consideration as defined in 10 CFR 50.92.

L-99-239
Attachment 3

ATTACHMENT 3

PROPOSED TECHNICAL SPECIFICATION PAGES

3/4 6-15
3/4 6-20
3/4 7-17

3/4.6.3 EMERGENCY CONTAINMENT FILTERING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.3 Three emergency containment filtering units shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one emergency containment filtering unit inoperable, restore the inoperable filter to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.3 Each emergency containment filtering unit shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 15 minutes;

b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following operational exposure of filters to effluents from painting, fire, or chemical release or (3) after every 720 hours of system operation by:

1) Performance of a visual inspection for foreign material and gasket deterioration, and verifying that the filtering unit satisfies the in-place penetration and bypass leakage testing acceptance criteria of greater than or equal to 99% removal of DOP and halogenated hydrocarbons at the system flow rate of 37,500 cfm ±10%;

2) Verifying within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with applicable portions of Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and performed in accordance with ~~ANSI N-510-1975, meets the acceptance criteria of greater than 99.9% removal of elemental iodine;~~ and that any charcoal failing to meet this criteria be replaced with charcoal that meets or exceeds the ~~criteria of position C.6.a of Regulatory Guide 1.52, Rev. 2;~~ and

3) Verifying a system flow rate of 37,500 cfm ±10% and a pressure drop across the HEPA and charcoal filters of less than 6 inches water gauge during system operation when tested in accordance with ANSI N510-1975;

ASTM D3803-1989 at 30°C and 95% relative humidity, meets the methyl iodide penetration criteria of less than 35%

Add

Delete

stated performance requirement

Add

3/4.6.6 POST ACCIDENT CONTAINMENT VENT SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.6 A Post Accident Containment Vent System shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

With the Post Accident Containment Vent System inoperable, restore the Post Accident Containment Vent System to OPERABLE status within 7 days or be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.6 The Post Accident Containment Vent System shall be demonstrated OPERABLE:

a. At least once per 31 days by demonstrating system flow path operability via a system walkdown to verify that each accessible manual valve is in its correct position.

b. At least once per 18 months or (1) after any structural maintenance of the HEPA filter or charcoal adsorber housings, or (2) following operational exposure of filters to effluents from painting, fire, or chemical release in any ventilation zone communicating with the system, or (3) after 720 hours of system operation or (4) after replacement of a filter by:

1) A visual inspection of the system for foreign materials and gasket deterioration and verifying that the filter system satisfies the penetration and bypass leakage testing acceptance criteria of less than 1% for DOP and halogenated hydrocarbon tests conducted at a design flow rate of 55 cfm ±10%;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample performed in accordance with ~~ANSI N510-1975, meets the methyl iodide removal criteria of greater than or equal to 90%~~ and that any charcoal failing to meet the criteria be replaced with charcoal that meets or exceeds the ~~criteria of Position C.6.a of Regulatory Guide 1.52, Revision 2~~.

ASTM D3803-1989 at 30°C and 95% relative humidity, meets the methyl iodide penetration criteria of less than 10%

Add

Delete

stated performance requirement

Add

SURVEILLANCE REQUIREMENTS (Continued)

ASTM D3803-1989 at 30°C and 95% relative humidity meets the methyl iodide penetration criteria of Less than 2.5%

1) Verifying that the air cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of greater than or equal to 99% DOP and halogenated hydrocarbon removal at a system flow rate of 1000 cfm ±10%.

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and analyzed per ~~ANSI N510-1975, meets the criteria for methyl iodine removal efficiency of greater than or equal to 99%~~ or the charcoal be replaced with charcoal that meets or exceeds the ~~criteria of position C.6.a. of Regulatory Guide 1.52 (Revision 2)~~ stated performance requirement, and

Add

Delete

Add

3) Verifying by a visual inspection the absence of foreign materials and gasket deterioration.

d. At least once per 12 months by verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches Water Gauge while operating the system at a flow rate of 1000 cfm ±10%;

e. At least once per 18 months by verifying that on a Containment Phase "A" Isolation test signal the system automatically switches into the recirculation mode of operation.

DEC 8 1939

FPL

NOV 30 1999

L-99-176
10 CFR §50.90

See Proposed Change to Tech Specs

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

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments
Soluble Boron Credit for Spent Fuel Pool and Fresh Fuel Rack Criticality Analyses

In accordance with 10 CFR §50.90, Florida Power and Light Company (FPL) requests that Appendix A of Facility Operating Licenses DPR-31 and DPR-41 be amended to modify Technical Specifications (TS) Table 3.9-1 and 5.6.1.

These proposed changes increase the subcritical margin in the Spent Fuel Pool (SFP) in order to accommodate degradation of the Boraflex panels in the fuel storage racks by permitting credit for soluble Boron. The generic methodology for crediting soluble boron in spent fuel rack criticality analysis, Westinghouse Spent Fuel Rack Criticality Analysis methodology WCAP-14416-NP-A, Revision 1, was approved by the Nuclear Regulatory Commission on October 25, 1996. The Turkey Point Units 3 and 4 specific Criticality Analyses for Fresh and Spent Fuel storage racks and the SFP Dilution Analysis are submitted herein to update the licensing bases which support the proposed TS changes.

A description of the amendments request is provided in Attachment 1. FPL has determined that the proposed license amendments do not involve a significant hazards consideration pursuant to 10 CFR §50.92. The no significant hazards determination in support of the proposed TS changes is provided in Attachment 2. Attachment 3 provides the proposed revised TS pages. Attachments 4 and 5 provide the Criticality Analyses for Spent Fuel Storage for Turkey Point Units 3 and 4. Attachment 6 provides the Turkey Point Units 3 and 4 SFP Dilution Analysis. Attachment 7 provides the Fresh Fuel Storage Criticality Analysis. Attachment 8 provides the Turkey Point Units 3 and 4 SFP monthly silica concentration data.

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

A001

PDR ADOCK 05000250

9934101 53

L-99-176

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments
Soluble Boron Credit for Spent Fuel Pool and Fresh Fuel Rack Criticality Analyses

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

FPL requests the review and approval of the proposed amendments by June 2000.

Should there be any questions, please contact us.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

SM

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

L-99-176

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments
Soluble Boron Credit for Spent Fuel Pool and Fresh Fuel Rack Criticality Analyses

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.

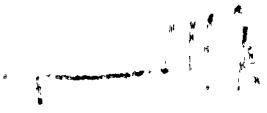
R. J. Hovey

Subscribed and sworn to before me this
29th day of November, 1999.

Cheryl A. Stevenson
Name of Notary Public (Type or Print)

CHERYL A. STEVENSON
MY COMMISSION # CC 564017
EXPIRES: June 19, 2000
Bonded Thru Notary Public Underwriters

R. J. Hovey is personally known to me.



Distribution Sheet

Priority: Normal

From: Elaine Walker

Action Recipients:	Copies:	
NRR/DLPM/LPD2-2	1	Not Found
K Jabbour	1	Not Found
B Clayton	1	Not Found

Internal Recipients:		
RidsNrrDssaSrxb	1	OK
RidsNrrDssaSplb	1	OK
RidsManager	1	OK
RidsAcrsAcnwMailCenter	1	OK
OGC/RP	1	Not Found
NRR/DSSA/SRXB	1	Not Found
NRR/DSSA/SPLB	1	Not Found
File Center 01	1	Not Found
ACRS	1	Not Found

External Recipients:		
NRC PDR	1	Not Found
NOAC	1	Not Found

Total Copies: 14

Item: ADAMS Document
Library: ML_ADAMS^HQNTAD01
ID: 993410153

Subject:
Turkey Point Units 3 and 4 Docket Nos. 50-250 and 50-251 Proposed License Amendments Soluble Boron Credit for Spent Fuel Pool and Fresh Fuel Rack Criticality Analyses

Body:
PDR ADOCK 05000250 P

Docket: 05000250, Notes: N/A

Docket: 05000251, Notes: N/A

Distribution Sheet

250 3/8/00

Priority: Normal

From: Stefanie Fountain

Action Recipients:	Copies:	
NRR/DLPM/LPD2-2	1	Paper Copy
K Jabbour	1	Paper Copy
B Clayton	1	Paper Copy

Internal Recipients:		
RidsRgn2MailCenter	0	OK
RidsOgcRp	0	OK
RidsNrrWpcMail	0	OK
RidsNrrDssaSrxb	0	OK
RidsManager	0	OK
RidsAcrsAcnwMailCenter	0	OK
OGC/RP	1	Paper Copy
NRR/DSSA/SRXB	1	Paper Copy
FILE CENTER 01	1	Paper Copy
ACRS	1	Paper Copy

External Recipients:		
NOAC	1	Paper Copy

Total Copies: 8

Item: ADAMS Document
Library: ML_ADAMS^HQNTAD01
ID: 003693888:1

Subject:
Proposed License Amendments Soluble Boron Credit for Spent Fuel Pool and Fresh Fu el Rack Criticality Analyses Response to Request for Additional Information

Body:
ADAMS DISTRIBUTION NOTIFICATION.

Electronic Recipients can RIGHT CLICK and OPEN the first Attachment to View the Document in ADAMS. The Document may also be viewed by searching for Accession Number ML003693888.

AAZ

A001 - OR Submittal: General Distribution

Docket: 05000250
Docket: 05000251

FPL

MAR 0 8 2000

L-2000-054
10 CFR 50.36
10 CFR 50.90

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

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments
Soluble Boron Credit for Spent Fuel Pool and Fresh Fuel Rack Criticality Analyses
Response to Request for Additional Information

By letter L-99-176, dated November 30, 1999, Florida Power and Light Company (FPL) requested that Appendix A of Facility Operating Licenses DPR-31 and DPR-41 be amended to modify Technical Specification (TS) 3.9-1 and 5.6.1. By letter dated January 31, 2000, the NRC staff requested additional information regarding the above referenced FPL submittal.

The response to the request for additional information is provided in Attachment 1. FPL has identified a typographical error in Attachment 5 of L-99-176. Attachment 2 of this letter provides the corrected report and supercedes Attachment 5 of L-99-176. FPL has determined that the additional information provided herein does not change the conclusions reached in the original no significant hazards consideration provided in FPL letter L-99-176. Attachment 3 provides the environmental consideration statement.

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.

Should there be any questions on this request, please contact us.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

SM
Attachments
cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point
Florida Department of Health

00369 3888

A001

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

STATE OF FLORIDA

COUNTY OF MIAMI-DADE

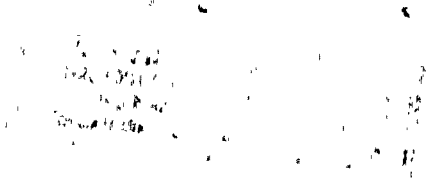
Subscribed and sworn to before me this
8th day of March, 2000,

by R. J. Hovey is personally known to me.

Cheryl A. Stevenson
Name of Notary Public, State of Florida

CHERYL A. STEVENSON
MY COMMISSION # CC 564017
EXPIRES: June 19, 2000
Bonded Thru Notary Public Underwriters

(Print, type or stamp Commissioned Name of Notary Public)



Attachment 1

The NRC staff requested additional information regarding FPL letter L-99-176, submitted on November 30, 1999, Proposed License Amendments Soluble Boron Credit for Spent Fuel Pool and Fresh Fuel Rack Criticality Analyses. The following discussion provides the response.

Request 1

The NRC staff safety evaluation report contained in WCAP-14416-NP-A presents the required technical specifications for use with the approved soluble boron credit methodology. The Fuel Storage Criticality specifications in the Design Features Section for both k-eff less than 1.0 if fully flooded with unborated water and for k-eff less than or equal to 0.95 if fully flooded with borated water require reference to WCAP-14416-P for a description of the uncertainties included. Therefore, proposed Technical Specifications 5.6.1.1.a and 5.6.1.1.b should include the phrase "which includes a conservative allowance for uncertainties as described in WCAP-14416-P."

Response 1

FPL agrees with the above recommendation and wording of proposed Technical Specifications 5.6.1.1.a and 5.6.1.1.b to include the phrase, "which includes a conservative allowance for uncertainties as described in WCAP-14416-P." The inclusion of this wording does not change the conclusions reached in the original no significant hazards consideration provided in FPL letter L-99-176.

Request 2

Please describe the administrative procedures used to select the appropriate assemblies for storage in the burnup-dependent racks in Region 2.

Response 2

Spent fuel assemblies assignment in Region II are specified by the Reload Engineering Design Modification Package which is reviewed and approved by the plant's safety review board prior to the offload of the irradiated fuel assemblies from the core. The basis for these assignments is documented in an engineering calculation in accordance with Nuclear Engineering Department Standard STD-F-009 Revision 3, "Irradiated Fuel Storage Assignments." The requirements in this standard are in compliance with Technical Specification 3/4.9.14 regarding the storage of irradiated fuel.

At Turkey Point, the movement of fuel assemblies is controlled by Administrative Procedure 0-ADM-556, Fuel Assembly and Insert Shuffle. Guidelines in this procedure along with the designation of assemblies which satisfy the requirements for storage in Region II, are used to proceduralize the movement of each individual assembly by an assembly identification number and an alpha numeric storage location via Fuel Handling Data Sheets. The Fuel Handling Data Sheets are used by operating personnel to coordinate and track the movement of each assembly to assure that it is stored in its proper location. Control of this evolution is via headphone communication between the Control Room and the fuel handling personnel. Once in the pool, an insert shuffle is done and a camera inspection of the assemblies that are going back into the core is performed. This inspection ensures that the assemblies going back in the core have the right insert and are located in the proper storage rack. The Fuel Handling Data Sheets become Quality Assurance records.

Request 3

Attachment 5 describes the criticality analysis performed with a reduced B-10 loading in the degraded Boraflex. The assumptions in the analysis include the following:

Region 1: 0.009 g/cm^2 absorber B-10 loading and 0.0351 inch thickness

Region 2: 0.006 g/cm^2 absorber B-10 loading and 0.051 inch thickness

The analysis based on these assumptions results in a K_{eff} less than 1.0 with no soluble boron. Please provide your plan to verify that the Boraflex panels have not degraded beyond the assumed thicknesses.

Response 3

Contingent upon approval of the proposed license amendments, FPL plans to perform a test, in 2001, to verify the analysis assumptions for Boraflex degradation.

Currently, FPL has an on-going in-service Boraflex verification program, which consists of measuring the gap formation, gap distribution, and gap size. The program accomplishes these goals through the performance of blackness testing on a frequency of one test every five years in either Spent Fuel Pool.

Upon approval of the proposed license amendments, FPL would commit to perform a test that validates our assumption on the thickness of the Boraflex every five years beginning in the year 2001. FPL would upgrade the blackness testing with a test which will not only measure the number of gaps and gap size but also validate our assumptions on the thickness of the Boraflex.

Substituting the blackness testing with an upgraded test, as well as changing the test date from the year 2000 to 2001, would change FPL's previous commitment as documented in L-95-041, dated September 5, 1995. Upon approval of the proposed license amendments, FPL will notify the NRC by separate correspondence, of the change in commitment.

Attachment 2

The value of 0.0006 g/cm^2 that is quoted on page 2 of 4 of FPL letter L-99-176, Attachment 5 (Westinghouse letter 999FP-G-012, Rev 1) is a typo and should read 0.006 g/cm^2. Westinghouse has corrected the typographical error and the attached report (Westinghouse letter 999FP-G-0102, Rev 2) supercedes Attachment 5 of L-99-176.

999FP-G-0102, Rev. 2
CAB-99-367, Rev. 2

Westinghouse Electric Company Commercial Nuclear Fuel Division Box 355
Pittsburgh Pennsylvania 15230-0355

January 5, 2000

Mr. Jimmie L. Perryman
ENG-JB Room D 4466
Florida Power & Light Company
P. O. Box 14000
Juno Beach, Florida 33408

Reference: 1) 99FP-G-0067, dated June 15, 1999
2) 99FP-G-0071, dated July 6, 1999

Dear Mr. Perryman:

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT UNITS 3 & 4
Criticality Analysis with Reduced B^{10} Loading in the Degraded Boraflex for Regions 1 and 2 Spent Fuel Storage, Revision 2

Attached are the results for the completed criticality analysis with the reduced B^{10} loading in the degraded boraflex for Turkey Point Units 3 and 4 Regions 1 and 2 spent fuel storage (no soluble boron). The methodology and assumptions used in the analysis are the same as in References 1 and 2, except that the absorber B^{10} loading and its thickness are reduced to 0.009 g/cm^2 and 0.0351 inch for Region 1 and 0.006 g/cm^2 and 0.051 inch (remain unchanged) for Region 2. For Region 1, the reduction of both the B^{10} loading and the corresponding thickness is slightly more limiting than the reduction of the B^{10} loading only. For Region 2, the reduction of the B^{10} loading only is slightly more limiting than the reduction of the B^{10} loading and the corresponding thickness. The final 95/95 Keff is shown in the attached Table 1 and Table 2 for spent fuel rack Region 1 and Region 2, respectively. Since both Keff's are still less than 1.0, the Turkey Point Units 3 and 4 spent fuel racks will remain subcritical when all cells are loaded 15x15 fresh fuel assemblies with nominal enrichments no greater than 4.50 w/o U^{235} with natural uranium axial blankets in Region 1, and with nominal enrichments no greater than 1.60 w/o in Region 2. This meets the design basis for no soluble boron water in the pool.

This transmittal has been revised to correct the Region 2 absorber B^{10} loading to 0.006 g/cm^2.

Please contact M. F. Muenks or me, if you have any questions or concerns about this criticality analysis.

Very truly yours,

for David E. McKinnon
Project Engineer
Commercial Nuclear Fuel Division

cc: B. Tomonto TP Site
J. Garcia Juno Beach
C. A. Villard Juno Beach
J. R. Dwight Columbia
M. F. Muenks Energy Center

/cad
Attachment

Criticality Analysis With a Reduced B^{10} Loading in the Degraded Boraflex for Turkey Point Units 3 & 4 Region 1 and Region 2 Spent Fuel All Cell Storage (No Soluble Boron)

January, 2000

S. Srinilta (ND)
Core Analysis B
Date: 1/5/2000

Verified:
J. Secker (ND)
Core Analysis C
Date: 1/5/2000

Criticality Analysis With a Reduced B^{10} Loading in the Degraded Boraflex for Turkey Point Units 3 & 4 Region 1 and Region 2 Spent Fuel All Cell Storage (No Soluble Boron)

A criticality analysis was performed with a reduced B^{10} loading in the degraded boraflex for Turkey Point Units 3 & 4 Region 1 and Region 2 spent fuel all cell storage (No Soluble Boron). The methodology and assumptions used in the analysis are the same as in Reference 1 except that the absorber B^{10} loading and its thickness are reduced to 0.009 g/cm^2 and 0.0351 inch for Region 1 and 0.006 g/cm^2 and 0.051 inch (remain unchanged) for Region 2. For Region 1, the reduction of both the B^{10} loading and the corresponding thickness is slightly more limiting than the reduction of the B^{10} loading only. For Region 2, the reduction of the B^{10} loading only is slightly more limiting than the reduction of the B^{10} loading and the corresponding thickness. The final 95/95 Keff is shown in the attached Table 1 and Table 2 for spent fuel rack Region 1 and Region 2, respectively. Since both Keff's are still less than 1.0, the Turkey Point Units 3 and 4 spent fuel racks will remain subcritical when all cells are loaded 15x15 fresh fuel assemblies with nominal enrichments no greater than 4.50 w/o U^{235} with natural uranium axial blankets in Region 1, and with nominal enrichments no greater than 1.60 w/o in Region 2. This meets the design basis for no soluble boron water in the pool.

Reference: 1) 99FP-G-0071 Criticality for Spent Fuel Storage for Turkey Point Units 3 & 4 (Degraded Boraflex)

Table 1. Region 1 - No Soluble Boron

Base Keno Reference Reactivity		0.97155
Calculation and Methodology Biases	**Range**	
Methodology (Benchmark) Bias		0.00770
Pool Temperature Bias	50 F to 185 F	0.00077
Boron Particles in Boraflex		0.00384
Total Bias		0.01231

Tolerances and Uncertainties	**Parameter Variation**	**Reactivity Variation**
Fuel Enrichment	+0.05/-0.05 %	0.00191
Fuel Density	+2/-2 %	0.00250
Fuel Pellet Dishing	-1.187 %	0.00145
Rack Cell Inner Dimension	+0.05/-0.025 inch	0.00153
Rack Cell Pitch	+0.12/-0.12 inch	0.01022
Rack Wall Thickness	+0.007/-0.007 inch	0.00024
Wrapper Plate Thickness	+0.002/-0.002 inch	0.00000
Poison Panel Thickness	+0.007/-0.007 inch	0.00973
Poison Cavity Thickness	+0.010/-0.010 inch	0.00004
Poison Panel Width	+0.075/-0.075 inch	0.00047
Asymmetric Assembly Position		0.00534
Calculation Uncertainty		0.00129
Benchmark Bias Uncertainty		0.00300
Total Uncertainty (convoluted)		0.01590

Final K_{eff} on 95/95 Basis	**0.99976**

Table 2. Region 2 - No Soluble Boron

Base Keno Reference Reactivity		0.97383
Calculation and Methodology Biases	**Range**	
Methodology (Benchmark) Bias		0.00770
Pool Temperature Bias	50 F to 185 F	0.00103
Boron Particles in Boraflex		0.00450
Total Bias		**0.01323**

Tolerances and Uncertainties	**Parameter Variation**	**Reactivity Variation**
Fuel Enrichment	+0.05/-0.05 %	0.00972
Fuel Density	+2/-2 %	0.00254
Fuel Pellet Dishing	-1.187 %	0.00116
Rack Cell Inner Dimension	+0.025/-0.025 inch	0.00000
Rack Cell Pitch	+0.07/-0.03 inch	0.00116
Rack Wall Thickness	+0.007/-0.007 inch	0.00000
Wrapper Plate Thickness	+0.002/-0.002 inch	0.00000
Poison Panel Thickness	+0.007/-0.007 inch	0.00582
Poison Cavity Thickness	+0.010/-0.010 inch	0.00000
Poison Panel Width	+0.075/-0.075 inch	0.00026
Asymmetric Assembly Position		0.00000
Calculation Uncertainty		0.00041
Benchmark Bias Uncertainty		0.00300
Total Uncertainty (convoluted)		**0.01213**

Final K_{eff} on 95/95 Basis	**0.99919**

L-2000-054

Attachment 3

Environmental Consideration

10 CFR 51.22(c)(9) provides criteria for identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not:

(i) involve a significant hazards consideration,
(ii) result in a significant change in the types or significant increase in the amounts of any effluents that my be released offsite, and
(iii) result in a significant increase in individual or cumulative occupational radiation exposure.

The proposed license amendments change the subcritical margin in the Spent Fuel Pool in order to accommodate degradation of the Boraflex panels in the fuel storage racks by permitting credit for soluble Boron. The proposed amendments do not expand the capacity of the Turkey Point Spent Fuel Pools. As described in UFSAR Section 5.2.4, each spent fuel pool rack has a maximum capacity of 1404 cells available for use, with no blanks inserted. The 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 meet the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). FPL has determined pursuant to 10 CFR 51.22(b), that an environmental impact statement or environmental assessment need not be prepared in connection with issuance of the amendments.

Distribution Sheet 3/9/00

50-250

Priority: Normal

From: Stefanie Fountain

Action Recipients:	Copies:	
NRR/DLPM/LPD2-2	1	Paper Copy
K Jabbour	1	Paper Copy
B Clayton	1	Paper Copy

Internal Recipients:		
RidsRgn2MailCenter	0	OK
RidsOgcRp	0	OK
RidsNrrWpcMail	0	OK
RidsNrrDssaSrxb	0	OK
RidsManager	0	OK
RidsAcrsAcnwMailCenter	0	OK
OGC/RP	1	Paper Copy
NRR/DSSA/SRXB	1	Paper Copy
FILE CENTER 01	1	Paper Copy
ACRS	1	Paper Copy

External Recipients:		
NOAC	1	Paper Copy

Total Copies: 8

Item: ADAMS Document
Library: ML_ADAMS^HQNTAD01
ID: 003692135:1

Subject:
Laboratory Testing of Nuclear Grade Activated Charcoal, Additional Information

Body:
ADAMS DISTRIBUTION NOTIFICATION.

Electronic Recipients can RIGHT CLICK and OPEN the first Attachment to View the Document in ADAMS. The Document may also be viewed by searching for Accession Number ML003692135.

AA2

A001 - OR Submittal: General Distribution

Docket: 05000250
Docket: 05000251

FPL

MAR 0 9 2000

L-2000-068
10 CFR §50.90

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

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
Proposed License Amendments
Laboratory Testing of Nuclear Grade Activated Charcoal
Additional Information

In accordance with 10 CFR §50.90, Florida Power and Light Company (FPL) requested in letter L-99-239, dated November 23, 1999, that Appendix A of Facility Operating Licenses DPR-31 and DPR-41 be amended to modify Technical Specification (TS) 3/4.6.3, Emergency Containment Filtering System, TS 3/4.6.6, Post Accident Containment Vent System, and TS 3/4.7.5, Control Room Emergency Ventilation System. The proposed license amendments were submitted in response to Generic Letter (GL) 99-02, Laboratory Testing of Nuclear-Grade Activated Charcoal, which requires that ASTM D3803-1989 be used for testing both new and used charcoal in engineered safety feature (ESF) applications.

As a result of conversations with your staff, FPL is pleased to provide the following additional information regarding the Control Room Emergency Ventilation System (CREVS). The face velocity of the CREVS charcoal filters is not an overt design parameter. Rather, the design flow rate for the CREVS filters is a volumetric flow rate of 1000 cubic feet per minute.

FPL reviewed the Turkey Point UFSAR and available correspondence on control room habitability to determine if the CREVS charcoal filter face velocity was previously transmitted to the NRC as part of an earlier submittal. No source documents were found that would indicate that the CREVS charcoal filter face velocity was previously docketed. As a result, FPL has prepared the attached tables. These tables summarize the information previously provided to the NRC in our responses to Generic Letter 99-02. The tables also include the requested information on CREVS face velocity.

The following parameters substantiate the 40 fpm CREVS face velocity specified in the attached table:

CREVS Filter Volumetric Flow:	1000 cfm
Number of CREVS Charcoal Cells:	3
Number of Beds in Each Cell:	2
Charcoal Bed Surface Area:	643 in^2 (26.5 in. x 24.25 in.)

Dividing the filter volumetric flow rate by the number of CREVS charcoal cells gives a volumetric flow rate of approximately 334 cfm per cell. Dividing this cell volumetric flow rate by the total charcoal bed surface area for flow in each cell gives the charcoal filter face velocity. Since each charcoal bed has 643 in^2 of surface area for flow, and each cell has a parallel arrangement of two charcoal beds, the total surface area for flow is 1286 in^2 or 8.9 ft^2 per cell. Dividing the cell volumetric flow rate of 334 cfm by this total surface area for flow gives a face velocity, i.e., linear velocity, of approximately 37.5 fpm. This value is rounded up to 40 fpm to account for a worst case combination of dimensional tolerances, and the slight reduction in surface flow area caused by the charcoal bed framing members.

A001

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments
Laboratory Testing of Nuclear Grade Activated Charcoal
Additional Information

The above parameters were taken from Section 4.7.5c.1 of the plant technical specifications, and Revision 1 of drawings 5610-M-38-16 and 5610-M-38-19.

Should there be any questions, please contact us.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

attachment

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

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments
Laboratory Testing of Nuclear Grade Activated Charcoal
Additional Information

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
9th day of March, 2000.
Cheryl A. Stevenson

Name of Notary Public (Type or Print)

CHERYL A. STEVENSON
MY COMMISSION # CC 564017
EXPIRES: June 19, 2000
Bonded Thru Notary Public Underwriters

R. J. Hovey is personally known to me.

TABLE 1 - CURRENT TS REQUIREMENTS										
System Description					Current TS Requirements					
TS Section	System	Bed Thickness (inches)	Credited Efficiency[1] (methyl iodide)	Face Velocity (ft/min)	Test Penetration (methyl iodide)	Safety Factor[2]	Test Standard	Test Temp[2] (°C)	Test RH[2]	Face Velocity[2] (ft/min)
3/4.6.3	ECFS	2	30%	40	N/A[4]	N/A	ANSI N510-1975	130	95%	40
3/4.7.5	CREVS	2	95%	40	≤ 1%	5	ANSI N510-1975	25	70%	40
3/4.6.6	PACVS	1	N/A[3]	14	≤ 10%	N/A	ANSI N510-1975	25	70%	40

[1] Credited as used in the safety analyses

[2] Not a current technical specification requirement

[3] Methyl iodide removal by the PACVS is not credited in the plant dose analyses

[4] Methyl iodide penetration in the ECFS is not tested. Current technical specification only requires elemental iodine testing

TABLE 2 - PROPOSED TS REQUIREMENTS										
System Description					Proposed TS Requirements					
TS Section	System	Bed Thickness (inches)	Credited Efficiency[1] (methyl iodide)	Face Velocity (ft/min)	Test Penetration (methyl iodide)	Safety Factor[2]	Test Standard	Test Temp (°C)	Test RH	Face Velocity[2] (ft/min)
3/4.6.3	ECFS	2	30%	40	<35%	2	ASTM D3803-1989	30	95%	40
3/4.7.5	CREVS	2	95%	40	<2.5%	2	ASTM D3803-1989	30	95%	40
3/4.6.6	PACVS	1	N/A[3]	14	< 10%	N/A	ASTM D3803-1989	30	95%	40

[1] Credited as used in the safety analyses

[2] Not a proposed technical specification requirement

[3] Methyl iodide removal by the PACVS is not credited in the plant dose analyses

Distribution Sheet

3/3/00

Priority: Normal

From: Stefanie Fountain

Action Recipients:	Copies:	
Internal Recipients:		
FILE CENTER 01	1	Paper Copy
External Recipients:		
NOAC	1	Paper Copy
Total Copies:	2	

Item: ADAMS Document
Library: ML_ADAMS^HQNTAD01
ID: 003689828

Subject:
Turkey Point Plant - RAI - RE: Potential Risk of the Proposed Civil and Government Aircraft Operations at Homestead Air Force Base (TAC Nos. MA6249 and MA6250)

Body:
ADAMS DISTRIBUTION NOTIFICATION.

Electronic Recipients can RIGHT CLICK and OPEN the first Attachment to View the Document in ADAMS. The Document may also be viewed by searching for Accession Number ML003689828.

DF01 - Direct Flow Distribution: 50 Docket (PDR Avail)

Docket: 05000250
Docket: 05000251

A13

Accession #ML003689828
Template-NRR-088

March 8, 2000

Mr. Thomas F. Plunkett
President - Nuclear Division
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE POTENTIAL RISK OF THE PROPOSED CIVIL AND GOVERNMENT AIRCRAFT OPERATIONS AT HOMESTEAD AIR FORCE BASE ON THE TURKEY POINT PLANT (TAC NOS. MA6249 AND MA6250)

Dear Mr. Plunkett:

By letter dated November 17, 1999, Florida Power and Light Company's (FPL's) responded to the U.S. Nuclear Regulatory Commission (NRC) staff request regarding the above subject. The NRC staff has reviewed FPL's submittal and has determined that additional information is needed by the staff before it can complete its review. The enclosed request for additional information (RAI) has been discussed with Olga Hanek of your staff. A target date for your response has been agreed upon to be 45 days from your receipt of this RAI. Should a situation occur that prevents you from meeting the target date, please contact me at (301) 415-1496.

Sincerely,
/RA/

Kahtan N. Jabbour, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: Request for Additional Information

cc w/encl: See next page

Distribution:

File Center	LBerry	PUBLIC	OGC	PDII-2 R/F
ACRS	SBlack	LWert	RCorreia	ESullivan
BClayton	FAkstulewicz	KJabbour	MRubin	

DOCUMENT NAME: G:\PDii-2\Turkey\RAIA6249 *See previous concurrence

INDICATE IN BOX: "C"=COPY W/O ATTACHMENT/ENCLOSURE, "E"=COPY W/ATT/ENCL, "N"=NO COPY

OFFICE	PM:PDII-2	E	LA:PDII-2	SC:SPSB*	SC:PDII-2		
NAME	KJabbour KNJ		BClayton BWC	MRubin	RCorreia RPC		
DATE	03/3/00		03/3/00	03/02/00	03/6/00		

OFFICIAL RECORD COPY

DF01

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 8, 2000

Mr. Thomas F. Plunkett
President - Nuclear Division
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE POTENTIAL RISK OF THE PROPOSED CIVIL AND GOVERNMENT AIRCRAFT OPERATIONS AT HOMESTEAD AIR FORCE BASE ON THE TURKEY POINT PLANT (TAC NOS. MA6249 AND MA6250)

Dear Mr. Plunkett:

By letter dated November 17, 1999, Florida Power and Light Company's (FPL's) responded to the U. S. Nuclear Regulatory Commission (NRC) staff request regarding the above subject. The NRC staff has reviewed FPL's submittal and has determined that additional information is needed by the staff before it can complete its review. The enclosed request for additional information (RAI) has been discussed with Olga Hanek of your staff. A target date for your response has been agreed upon to be 45 days from your receipt of this RAI. Should a situation occur that prevents you from meeting the target date, please contact me at (301) 415-1496.

Sincerely,

Kahtan N. Jabbour

Kahtan N. Jabbour, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: Request for Additional Information

cc w/encl: See next page

Mr. T. F. Plunkett
Florida Power and Light Company

TURKEY POINT PLANT

cc:
M. S. Ross, Attorney
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. Robert J. Hovey, Site
Vice President
Turkey Point Nuclear Plant
Florida Power and Light Company
9760 SW. 344th Street
Florida City, FL 33035

County Manager
Miami-Dade County
111 NW 1 Street, 29th Floor
Miami, Florida 33128

Senior Resident Inspector
Turkey Point Nuclear Plant
U.S. Nuclear Regulatory Commission
9762 SW. 344th Street
Florida City, Florida 33035

Mr. William A. Passetti, Chief
Department of Health
Bureau of Radiation Control
2020 Capital Circle, SE, Bin #C21
Tallahassee, Florida 32399-1741

Mr. Joe Myers, Director
Division of Emergency Preparedness
Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100

Attorney General
Department of Legal Affairs
The Capitol
Tallahassee, Florida 32304

Plant Manager
Turkey Point Nuclear Plant
Florida Power and Light Company
9760 SW. 344th Street
Florida City, FL 33035

Mr. Steve Franzone
Licensing Manager
Turkey Point Nuclear Plant
9760 SW. 344th Street
Florida City, FL 83035

Mr. John Gianfrancesco
Manager, Administrative Support
and Special Projects
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. J.A. Stall
Vice President - Nuclear Engineering
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

REQUEST FOR ADDITIONAL INFORMATION

REGARDING THE POTENTIAL RISK OF THE PROPOSED CIVIL AND GOVERNMENT AIRCRAFT OPERATIONS AT HOMESTEAD AIR FORCE BASE ON TURKEY POINT UNITS 3 AND 4

FLORIDA POWER AND LIGHT COMPANY

DOCKET NOS. 50-250 AND 50-251

1. The attachment to the FPL June 15, 1998 letter response (L-98-152) on aircraft hazards presents the equation

$$f = N * P * A * F$$

as part of the Department of Energy methodology for assessing the risk of aircraft crashes to nuclear power plants. The definition of P is given as "in flight crash rate per mile . . . ." In addition, F is defined as "crash probability density over area A," without any mention of units. If F is dimensionless, then the units of f work-out to be

(Flight operation/year)*(crashes/mile)*(sq. miles)*(probability density).

This has the units of

Flight operations-crashes-miles/year

which is incompatible with the quantity f, whose units are crashes/year.

The same equation is also presented in FPL's attachment to June 24, 1994 letter response (L-94-157) on IPEEE results for aircraft. However, some of the definitions appear to be different. Specifically, on page 27, P is defined as "probability of an aircraft crash per operation." With this definition the units for the equation are

(Flight operations/year)*(crashes/flight operations)*(sq. miles)*(probability density).

This works-out to have the units

Crashes-sq.miles/year

which again is inappropriate for a crash frequency. It appears in this case that if the crash probability density had the units of (1/sq. mile) then the overall crash frequency would have the units of crashes/year.

ENCLOSURE

Please provide a clarification of the units that were used in both analyses with respect to the crash probability and the crash probability density.

2. With respect to the aircraft risk analyses performed for Turkey Point Units 3 & 4, please indicate how the presence of the adjacent fossil unit chimneys was taken into account when calculating the effective target area used in estimating the on-site crash frequency. Indicate the relative effect of the chimneys on the total calculated effective target area.

3. The on-site crash frequency was estimated using parameters that are dependent on aircraft type and flight phase. Specifically, this applies to the parameters N, P, A, and F in the equation

$$f = N * P * A * F .$$

That is, the equation is really of the form

$$f = \sum_i \sum_j N_{ij} P_{ij} A_{ij} F_{ij}$$

where i is the ith type of aircraft and j is the jth flight phase. Please provide a sample of representative values (e.g., for a commercial air carrier and a large military aircraft) that were used in the analyses for each of these parameters. Please indicate the source of the information used to evaluate each parameter.

4. According to the draft SEIS for the proposed disposal of some of the former Homestead Air Force Base, bird strikes can cause aircraft mishaps. Hence, some portion of the overall crash rate for a given aircraft and flight phase may be attributable to bird strikes. To what extent has the possibility of bird strikes been incorporated in the aircraft risk assessment for Turkey Point Units 3 & 4? If the Turkey Point aircraft risk analyses are based on nationally averaged aircraft crash rates, please indicate how representative these rates are of the projected Homestead air operations with respect to the bird strike contribution?

5. The draft SEIS (pp. 2.2-9 to 2.2-11), in discussing the projected air traffic for the proposed Homestead airport conversion, indicates that more than 80% of the traffic is estimated to be in connection with flights from Latin America, the Caribbean, or other international locations. The aircraft crash rates presented in NUREG-0800, SRP 3.5.1.6, are based on data for U.S. Carriers, General Aviation, and military aviation. Hence, the data may not be representative of the air traffic mix being projected for the Homestead airport.

For example, in an item presented by the National Center for Policy Analysis,* reference is made to an 80-page report of the Commercial Aviation Safety Strategy Team in which the U.S. accident rate from 1987 to 1996 is described to be on the average of 0.5 major accidents per million departures, compared to 0.7 for Western Europe, 4.8 for Eastern Europe and the old Soviet Union, 5.7 for Latin America and 13 for Africa. This suggests that the accident rate could be significantly affected by the mix of air traffic that is being projected. Indicate if this has been taken into account in the FPL aircraft analyses to-date and if not, to what extent would this affect the previously estimated aircraft risks for Turkey Point Units 3 & 4.

*(http://www.ncpa.org/pd/regulat/pdreg/regfeb98e.html)

1/31/00

Distri29.txt
Distribution Sheet

Priority: Normal

From: Andy Hoy

Action Recipients:	Copies:	
Internal Recipients:		
FILE CENTER 01	1	Paper Copy
External Recipients:		
NOAC	1	Paper Copy
Total Copies:	2	

Item: ADAMS Document
Library: ML_ADAMS^HQNTAD01
ID: 003678652

Subject:
Turkey Point Units 3 and 4 - RAI on Soluble Boron Credit for Spent Fue
l Pool and Fresh Fuel Rack Criticality Analyses

Body:
ADAMS DISTRIBUTION NOTIFICATION.

Electronic Recipients can RIGHT CLICK and OPEN the first Attachment to
View
the Document in ADAMS. The Document may also be viewed by searching f
or
Accession Number ML003678652.

DF01 - Direct Flow Distribution: 50 Docket (PDR Avail)

Docket: 05000250
Docket: 05000251

AA3

ACCESSION # ML003678652
Template # NRR-088

January 31, 2000

Mr. Thomas F. Plunkett
President - Nuclear Division
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: TURKEY POINT UNITS 3 AND 4 - REQUEST OF ADDITIONAL INFORMATION REGARDING SOLUBLE BORON CREDIT FOR SPENT FUEL POOL AND FRESH FUEL RACK CRITICALITY ANALYSES (TAC NOS. MA7262 AND MA7263)

Dear Mr. Plunkett:

By letter dated November 30, 1999, Florida Power and Light Company's (FPL's) proposed technical specification changes for Turkey Point Units 3 and 4. The proposed changes would permit taking credit for the soluble boron in the spent fuel pool and fresh fuel rack criticality analyses in order to accommodate degradation of the boraflex panels in the fuel storage racks.

The NRC staff has reviewed FPL's submittal and has determined that additional information is needed by the staff before it can complete its review. The enclosed request for additional information (RAI) has been discussed with S. Mihalakea of your staff. A target date for your response has been agreed upon to be 30 days from your receipt of this RAI. Should a situation occur that prevents you from meeting the target date, please contact me at (301) 415-1496.

Sincerely,

/RA by R. Hernan for:

Kahtan N. Jabbour, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: Request for Additional Information

NRC HALF CENTER COPY

cc w/encl: See next page

Distribution:

File Center	LBerry
PUBLIC	OGC
Turkey Point R/F	ACRS
SBlack	LWert
RCorreia	ESullivan
BClayton	FAkstulewicz
KJabbour	

DOCUMENT NAME: G:\PDii-2\Turkey\RAIA7262

DF01

INDICATE IN BOX: "C"=COPY W/O ATTACHMENT/ENCLOSURE, "E"=COPY W/ATT/ENCL, "N"=NO COPY

OFFICE	PM:PDII-2	E	LA:PDII-2	EMCB:SC	SRXB:SC	SC:PDII-2
NAME	KJabbour		BClayton	ESullivan	FAkstulewicz	RCorreia
DATE	01/30/00		01/27/00	01/28/00	1/31/00	1/30/00

OFFICIAL RECORD COPY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 31, 2000

Mr. Thomas F. Plunkett
President - Nuclear Division
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: TURKEY POINT UNITS 3 AND 4 - REQUEST OF ADDITIONAL INFORMATION REGARDING SOLUBLE BORON CREDIT FOR SPENT FUEL POOL AND FRESH FUEL RACK CRITICALITY ANALYSES (TAC NOS. MA7262 AND MA7263)

Dear Mr. Plunkett:

By letter dated November 30, 1999, Florida Power and Light Company's (FPL's) proposed technical specification changes for Turkey Point Units 3 and 4. The proposed changes would permit taking credit for the soluble boron in the spent fuel pool and fresh fuel rack criticality analyses in order to accommodate degradation of the boraflex panels in the fuel storage racks.

The NRC staff has reviewed FPL's submittal and has determined that additional information is needed by the staff before it can complete its review. The enclosed request for additional information (RAI) has been discussed with S. Mihalakea of your staff. A target date for your response has been agreed upon to be 30 days from your receipt of this RAI. Should a situation occur that prevents you from meeting the target date, please contact me at (301) 415-1496.

Sincerely,

Ronald W. Hernan for

Kahtan N. Jabbour, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: Request for Additional Information

cc w/encl: See next page

Mr. T. F. Plunkett
Florida Power and Light Company

cc:
M. S. Ross, Attorney
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. Robert J. Hovey, Site
Vice President
Turkey Point Nuclear Plant
Florida Power and Light Company
9760 SW. 344th Street
Florida City, FL 33035

County Manager
Miami-Dade County
111 NW 1 Street, 29th Floor
Miami, Florida 33128

Senior Resident Inspector
Turkey Point Nuclear Plant
U.S. Nuclear Regulatory Commission
9762 SW. 344th Street
Florida City, Florida 33035

Mr. William A. Passetti, Chief
Department of Health
Bureau of Radiation Control
2020 Capital Circle, SE, Bin #C21
Tallahassee, Florida 32399-1741

Mr. Joe Myers, Director
Division of Emergency Preparedness
Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100

Attorney General
Department of Legal Affairs
The Capitol
Tallahassee, Florida 32304

Plant Manager
Turkey Point Nuclear Plant
Florida Power and Light Company
9760 SW. 344th Street
Florida City, FL 33035

Mr. Steve Franzone
Licensing Manager
Turkey Point Nuclear Plant
9760 SW. 344th Street
Florida City, FL 33035

Mr. John Gianfrancesco
Manager, Administrative Support
and Special Projects
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. Rajiv S. Kundalkar
Vice President - Nuclear Engineering
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

REQUEST FOR ADDITIONAL INFORMATION

RELATED TO THE AMENDMENT OF THE TECHNICAL SPECIFICATIONS
FOR SOLUBLE BORON CREDIT FOR SPENT FUEL POOL AND FRESH FUEL RACK
CRITICALITY ANALYSES

TURKEY POINT UNITS 3 AND 4
FLORIDA POWER AND LIGHT COMPANY
DOCKET NOS. 50-250 AND 50-251

1. The NRC staff safety evaluation report contained in WCAP-14416-NP-A presents the required technical specifications for use with the approved soluble boron credit methodology. The Fuel Storage Criticality specifications in the Design Features Section for both k-eff less than 1.0 if fully flooded with unborated water and for k-eff less than or equal to 0.95 if fully flooded with borated water require reference to WCAP-14416-P for a description of the uncertainties included. Therefore, proposed technical specifications 5.6.1.1.a and 5.6.1.1.b should include the phrase "which includes a conservative allowance for uncertainties as described in WCAP-14416-P."

2. Please describe the administrative procedures used to select the appropriate assemblies for storage in the burnup-dependent racks in Region 2.

3. Attachment 5 describes the criticality analysis performed with a reduced B-10 loading in the degraded boraflex. The assumptions in the analysis include the following:
Region 1: 0.009 g/cm^2 aborber B-10 loading and 0.0351 inch thickness
Region 2: 0.006 g/cm^2 absorber B-10 loading and 0.051 inch thickness

The analysis based on these assumptions results in a K_{eff} less than 1.0 with no soluble boron. Please provide your plan to verify that the boraflex panels have not degraded beyond the assumed thicknesses.

ENCLOSURE

50-250
4/16/01

See Accessions For Encls

Distri~1.txt

Distribution Sheet

Priority: Normal

From: E-RIDS3

Action Recipients:	Copies:	
RidsNrrPMKJabbour	0	OK

Internal Recipients:		
RidsRgn2MailCenter	0	OK
RidsManager	0	OK
RidsIroMailCenter	0	OK
RidsAcrsAcnwMailCenter	0	OK
IRO	1	Paper Copy
FILE CENTER 01	1	Paper Copy

External Recipients:		
NRC PDR	1	Paper Copy
NOAC	1	Paper Copy
IHS	1	Paper Copy

Total Copies: 5

Item: ADAMS Package
Library: ML_ADAMS^HQNTAD01
ID: 011130369

ATTENTION DCD

PLEASE CREATE & PROVIDE COPIES OF ATTACHED CD TO ALL RECIPIENTS

Subject:
Letter forwarding Turkey Point Units 3 and 4 Updated Final Safety Analysis Report Revisi on 17 Document Date: 04/16/2001

Body:
ADAMS DISTRIBUTION NOTIFICATION.
*** -
A053 - OR Submittal: Updated FSAR (50.71) and Amendments

Title: Letter forwarding Turkey Point Units 3 and 4 Updated Final Safety Analysis Report R evision 17

Docket Number: 05000250
Docket Number: 05000251
Document Date: 04/16/2001
Author Name: Hovey R J
Author Affiliation: FPL Group Company
Addressee Name:
Addressee Affiliation: NRC/Document Control Desk
Document Type: Letter
Availability: Publicly Available
Document Sensitivity: Non-Sensitive
Comment: Electronic Drawing files contained on CD-ROM were not added to ADAMS. A copy of the CD-ROM was provided to the NRC Public Document Room and File Cent er.

Electronic Recipients can RIGHT CLICK and OPEN the first Attachment to View the Document in ADAMS. The Document may also be viewed by searching for Accession Number ML011130369.

FPL

APR 16 2001

L-2001-086
10 CFR 50.4
10 CFR 50.71

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

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Updated Final Safety Analysis Report Revision 17

Florida Power and Light Company has completed Revision 17 of the Turkey Point Units 3 and 4 Final Safety Analysis Report (FSAR).

The enclosed information accurately reflects plant changes made since the previous submittal. This revision incorporates changes completed between April 9, 1999 and October 23, 2000. Miscellaneous user comments resolved during this time period have also been incorporated.

A single CD-ROM of this document is being submitted in lieu of hard copies in accordance with guidance provided by RIS 2001-05, "Guidance on Submitting Documents to the NRC by Electronic Information Exchange or on CD-ROM," and NRC letter to Turkey Point dated March 28, 2001, "Florida Power & Light Co., Turkey Point Plant, Request for Exception to 10 CFR 50.4, Written Communications," from Brenda J. Shelton. This CD-ROM submittal of the complete FSAR will make obsolete all previous hard copies of the document. It is requested that you destroy or return to us these obsolete copies.

If you have any questions, please contact Steve Franzone at 305-246-6228.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

DRL

Attachment

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point

Rec. with CD

HL01113026 2

A053

Distri20.txt
Distribution Sheet

Priority: Normal

From: Andy Hoy

6/15/00

Revised 3/7/00

Action Recipients:	Copies:	
K Jabbour	1	Paper Copy
Internal Recipients:		
RGN2.	1	Paper Copy
IRO	1	Paper Copy
FILE CENTER 01	1	Paper Copy
ACRS	1	Paper Copy
External Recipients:		
NRC PDR	1	Paper Copy
NOAC	1	Paper Copy
IHS	1	Paper Copy

Total Copies: 8 DCD has 11 copies of enclosure

Item: ADAMS Document
Library: ML_ADAMS^HQNTAD01
ID: 003677802

Subject:
Revision 17 to Updated Final Safety Analysis Report for Turkey Point Units 3 and 4.

Body:
ADAMS DISTRIBUTION NOTIFICATION.

Electronic Recipients can RIGHT CLICK and OPEN the first Attachment to View
the Document in ADAMS. The Document may also be viewed by searching for
Accession Number ML003677802.

A053 - OR Submittal: Updated FSAR (50.71) and Amendments

Docket: 05000250

A044

Docket: 05000251

Non-controlled Document Revision Transmittal

Printed: 1/19/00

FSAR

Name: U.S.N.R.C. US Loc: US MAIL Note: 11 COPIES

DOCUMENT CONTROL DESK WASHINGTON, D.C. 20555 ~~("L" LETTER REQUIRED)~~ FM

The holder is responsible for verifying that this revision is complete and for destroying superseded copies.

Title	To Be Removed:	To Be Added:	
FINAL SAFETY ANALYSIS REPORT	Revision	Revision	No. of Pages
LIST OF EFFECTIVE PAGES	16	17	8
CHAPTER 4, TABLE 4.1-3	16	17-001	1
CHAPTER 5, TEXT PAGE 5.1.3-16	13	17-004	1
CHAPTER 5, APPENDIX 5A, PAGE 5A-11	16	17-004	1
CHAPTER 9, TEXT PAGE 9.5-17	13	17-003	1
CHAPTER 9, APPENDIX 9.6A, PAGE 96A-63	15	17-007	1
CHAPTER 11, CONTENTS PAGE 11-iii	13	17-008	1
CHAPTER 11, TEXT PAGE 11.4-1 (NEW)	------	17-008	1
CHAPTER 12 (NEW CHAPTER, CONTENTS, TEXT)	-----	17-008	10
APPROVED INTERIM REVISIONS TO THE FSAR ARE ISSUED AND WILL BE MAINTAINED ON YELLOW PAPER (PLEASE TAKE CAUTION WHEN FILING)			

A053
0/10

ML003677802

VOLUME 2 (Continued)

VOLUME 2 (Continued)

VOLUME 2 (Continued)

VOLUME 2 (Continued)

CHAPTER 5

Contents

PAGE	REV
5-i	16
5-ii	13
5-iii	16
5-iv	16
5-iva	10
5-v	15
5-vi	9
5-vii	16
5-viii	13

Text

PAGE	REV
5.1.1-1	14
5.1.1-2	14
5.1.1-3	16
5.1.1-4	16
5.1.1-5	16
5.1.1-6	16
5.1.1-7	16
5.1.2-1	13
5.1.2-2	16
5.1.2-3	10
5.1.2-4	0
5.1.2-5	16
5.1.2-6	16
5.1.2-7	11
5.1.3-1	13
5.1.3-1a	13
5.1.3-2	0
5.1.3-3	13
5.1.3-4	0
5.1.3-5	13
5.1.3-6	0
5.1.3-7	0
5.1.3-8	0
5.1.3-9	0
5.1.3-10	13
5.1.3-11	0
5.1.3-12	0
5.1.3-13	0
5.1.3-14	0
5.1.3-15	0
5.1.3-16	13
5.1.3-17	0
5.1.3-18	16
5.1.3-19	16
5.1.3-20	16
5.1.3-21	0
5.1.3-22	0
5.1.3-23	0
5.1.3-24	0
5.1.3-25	0
5.1.3-26	0
5.1.3-27	0
5.1.3-28	0
5.1.3-29	16
5.1.3-30	0
5.1.3-31	0
5.1.3-32	0
5.1.3-33	0
5.1.3-34	0
5.1.3-35	0
5.1.3-36	0
5.1.3-37	16
5.1.3-38	13

Table

PAGE	REV
5.1.3-1	0

Text

PAGE	REV
5.1.4-1	16
5.1.4-1a	13
5.1.4-1b	13
5.1.4-2	0
5.1.4-3	13
5.1.4-4	0
5.1.4-5	13
5.1.4-6	0
5.1.4-7	13
5.1.4-8	0
5.1.4-9	0
5.1.4-10	0
5.1.4-11	0
5.1.4-12	0
5.1.4-13	0

VOLUME 2 (Continued)

CHAPTER 5 (cont'd)

PAGE	REV
Table	
5.1.4-1(Sh1)	0
5.1.4-1(Sh2)	0
5.1.4-1(Sh3)	0
5.1.4-1(Sh4)	13
5.1.4-1(Sh5)	13
5.1.4-1(Sh6)	0
Text	
5.1.5-1	16
5.1.5-2	13
5.1.5-3	16
5.1.6-1	0
5.1.6-2	0
5.1.6-3	0
5.1.6-4	16
5.1.6-5	0
5.1.6-6	0
5.1.6-7	0
5.1.6-8	0
5.1.6-9	0
5.1.6-10	0
5.1.6-11	0
5.1.6-12	9
Table	
5.1.6-1	0
5.1.6-2 (Deleted)	9
Text	
5.1.7-1	16
5.1.7-2	0
5.1.7-3	0
5.1.7-4	0
5.1.7-5	11
5.1.7-6	16
5.1.7-7	13
5.1.7-8	13

PAGE	REV
Text	
5.1.8-1	0
5.1.8-2	0
5.1.8-3	16
5.1.9-1	0
5.1.9-2	0
5.1.9-3	7
5.1.9-3a	7
5.1.9-4	0
Figure	
5.1-1(Sh1)	0
5.1-1(Sh2)	0
5.1-1(Sh3)	7
5.1-2	16
5.1-3	9
5.1-4(Sh1)	0
5.1-4(Sh2)	0
5.1-5	0
5.1-6	0
5.1-7	0
5.1-8	0
5.1-9(Sh1)	0
5.1-9(Sh2)	0
5.1-9/Note 1	13
5.1-9(Sh3)	0
5.1-9(Sh4)	0
5.1-10(Sh1)	0
5.1-10(Sh2)	0
5.1-10(Sh3)	0
5.1-10/Note 1	13
5.1-10(Sh4)	0
5.1-11	0
5.1-12(Sh1)	0
5.1-12(Sh2)	0
5.1-13	0
5.1-14/Note 1	13
5.1-14	0
5.1-15	6
5.1-16	0
5.1-17(Sh1)	0
5.1-17(Sh2)	0

VOLUME 2 (Continued)

VOLUME 4 (Continued)

CHAPTER 9 (cont'd)

PAGE	REV
Text	
9.5-3	16
9.5-4	3
9.5-5	16
9.5-6	15
9.5-7	4
9.5-7a	16
9.5-8	2
9.5-9	1
9.5-10	7
9.5-10a	15
9.5-11	15
9.5-12	16
9.5-12a	16
9.5-13	15
9.5-14	16
9.5-15	16
9.5-16	13
9.5-17	13
Table	
9.5-1	16
9.5-2	16
Figure	
9.5-1	0
9.5-2	9
Text	
9.6-1	14
9.6-2	16
9.6-3	16
9.6-3a	16
9.6-4	15
9.6-5	16
9.6-6	16
9.6-7	13
Table	
9.6-1	16
9.6-2	16

PAGE	REV
Figure	
9.6-1	13
9.6-2	13
9.6-3	13
9.6-4 (Deleted)	12
9.6-5	13
9.6-6	13
9.6-7	13
9.6-8	13
9.6-9	13
9.6-10	13
9.6-11	13
9.6-12	13
9.6-13	13
9.6-14	13
9.6-15	13
9.6-16	13
9.6-17	13
9.6-18	13
Text	
9.7-1	0
9.7-2	0
9.7-3	16
Text	
9.8-1	16
9.8-2	11
9.8-3	16
9.8-4	16
Table	
9.8-1(Sh1)	16
9.8-1(Sh2)	13
Figure	
9.8-1	13
9.8-2	13
9.8-3	13
9.8-4	13
9.8-5	13
9.8-6	13

VOLUME 4 (Continued)

VOLUME 4 (Continued)

APPENDIX 9.6A (cont'd)

PAGE	REV
Text	
9.6A-55	16
9.6A-56	15
9.6A-57	16
9.6A-58	15
9.6A-59	15
9.6A-60	8
9.6A-61	16
9.6A-62	16
9.6A-63	15
9.6A-64	8
9.6A-65	8
9.6A-66	8
9.6A-67	15
9.6A-68	16
9.6A-69	8
9.6A-70	8
9.6A-71	8
9.6A-72	16
9.6A-73	16
9.6A-74	8
9.6A-75	8
9.6A-76	16
9.6A-77	8
9.6A-78	8
9.6A-79	8
9.6A-80	8
9.6A-81	8
9.6A-82	8
9.6A-83	10
9.6A-84	16
9.6A-85	16
9.6A-86	16
9.6A-87	16
9.6A-88	16
9.6A-89	16
9.6A-90	16
9.6A-91	8
9.6A-92	13
9.6A-92a	16
9.6A-93	16
9.6A-94	13
9.6A-95	16
9.6A-96	8
9.6A-97	8
9.6A-98	15
9.6A-99	16
9.6A-100	8
9.6A-101	10
9.6A-102	16
9.6A-103	16
9.6A-104	16
9.6A-104a	15
9.6A-105	16
9.6A-106	16
9.6A-107	16
9.6A-108	16
9.6A-109	16
9.6A-110	16
9.6A-111	16
9.6A-112	10
9.6A-113	8
9.6A-114	16
9.6A-115	16
9.6A-116	16
9.6A-117	16
9.6A-118	16
9.6A-119	8
9.6A-120	16
9.6A-121	16
9.6A-122	16
9.6A-123	16
9.6A-124	16
9.6A-125	8
9.6A-126	8
9.6A-127	8
9.6A-128	8
9.6A-129	16
9.6A-130	16
9.6A-131	16
9.6A-132	16
9.6A-133	8
9.6A-134	16
9.6A-135	16
9.6A-136	16
9.6A-137	16
9.6A-138	8

VOLUME 4 (Continued)

APPENDIX 9.6A (cont'd)

PAGE	REV
Text	
9.6A-139	16
9.6A-140	16
9.6A-141	16
9.6A-142	13
9.6A-143	16
9.6A-144	15
9.6A-145	8
9.6A-146	16
9.6A-147	16
9.6A-148	8
9.6A-149	13
9.6A-150	13
9.6A-151	8
9.6A-152	16
9.6A-153	16
9.6A-154	16
9.6A-155	16
9.6A-156	16
9.6A-157	8
9.6A-158	16
9.6A-159	16
9.6A-160	8
9.6A-161	8
9.6A-162	16
9.6A-163	16
9.6A-164	10
9.6A-164a	16
9.6A-164b	10
9.6A-165	16
9.6A-166	16
9.6A-167	16
9.6A-168	16
9.6A-169	16
9.6A-170	16
9.6A-171	16
9.6A-172	16
9.6A-173	16
9.6A-174	16
9.6A-175	16
9.6A-176	16
9.6A-177	16
9.6A-177a	16
9.6A-177b	16

PAGE	REV
Text	
9.6A-178	16
9.6A-179	16
9.6A-180	16
9.6A-180a	16
9.6A-181	8
9.6A-182	8
9.6A-183	16
9.6A-184	8
9.6A-185	16
9.6A-186	16
9.6A-187	16
9.6A-188	8
9.6A-189	16
9.6A-190	8
9.6A-191	16
9.6A-192	16
9.6A-193	16
9.6A-194	16
9.6A-195	16
9.6A-196	8
9.6A-197	15
9.6A-198	15
9.6A-199	15
9.6A-200	16
9.6A-201	15
9.6A-202	15
9.6A-203	15
9.6A-204	10
9.6A-205	16
9.6A-206	10
9.6A-207	16
9.6A-208	8
9.6A-209	10
9.6A-210	16
9.6A-211	8
9.6A-212	16
9.6A-213	8
9.6A-214	8
9.6A-215	16
9.6A-216	16
9.6A-217	8
9.6A-218	16
9.6A-219	16
9.6A-220	16

VOLUME 4 (Continued)

CHAPTER 10 (Cont'd)

PAGE	REV
Figure	
10.2-52	13
10.2-53	13
10.2-54	13
10.2-55	13
10.2-56	13
10.2-57	13
10.2-58	13
10.2-59	13
10.2-60	13
10.2-61	13
10.2-62	13
10.2-63	13
10.2-64	13
10.2-65	13

PAGE	REV
Text	
10.3-1	0
10.3-2	4
10.3-3	9
10.4-1	16

VOLUME 5

CHAPTER 11

Contents

PAGE	REV
11-i	16
11-ii	15
11-iii	13
11-iv	13
11-v	13
11-vi	13

Text

PAGE	REV
11.1-1	16
11.1-2	16
11.1-2a	16
11.1-3	16
11.1-4	16
11.1-5	16
11.1-6	0
11.1-7	16
11.1-8	15
11.1-9	16
11.1-10	16
11.1-11	16
11.1-12	16
11.1-13	16
11.1-14	16
11.1-15	16
11.1-16	16
11.1-17	16
11.1-18	16
11.1-19	16
11.1-20	16
11.1-21	16
11.1-22	16

Table

PAGE	REV
11.1-1	0
11.1-2	16
11.1-3(Sh1)	16
11.1-3(Sh2)	16
11.1-4	16
11.1-5	0
11.1-6	0

Figure

PAGE	REV
11.1-1	13
11.1-2	13
11.1-3	9
11.1-4	13
11.1-5	0
11.1-6 (Deleted)	12
11.1-7	13
11.1-8	13
11.1-9	13
11.1-10	13
11.1-11	13
11.1-12	13
11.1-13	13
11.1-14	13
11.1-15	13
11.1-16	13
11.1-17	13
11.1-18	13
11.1-19	13
11.1-20	13
11.1-21	13
11.1-22	13

Text

PAGE	REV
11.2-1	16
11.2-2	16
11.2-3	16
11.2-4	0
11.2-5	16
11.2-6	6
11.2-7	0
11.2-8	16
11.2-9	0
11.2-10	0
11.2-11	11
11.2-12	16
11.2-13	16
11.2-13a	16

VOLUME 5 (Continued)

VOLUME 5 (Continued)

PAGE	REV
CHAPTER 14 (cont'd)	
Contents	
14-xvii	14
14-xviii	16
14-xix	16
14-xx	15
14-xxi	15
Text	
14-1	14
14-2	14
14-3	14
14-4	14
14-5	14
14-6	14
Figure	
14-1	0
Text	
14.1-1	0
14.1-2	0
14.1.1-1	1
14.1.1-2	14
14.1.1-3	14
14.1.1-4	13
14.1.1-5	14
14.1.1-6	15
Table	
14.1.1-1	14
Figure	
14.1.1-1	14
14.1.1-2	14
14.1.1-3	14
14.1.1-4	14

PAGE	REV
Text	
14.1.2-1	14
14.1.2-2	14
14.1.2-3	14
14.1.2-4	14
14.1.2-5	14
Table	
14.1.2-1	14
Figure	
14.1.2-1	14
14.1.2-2	14
14.1.2-3	14
14.1.2-4	14
14.1.2-5	14
14.1.2-6	14
14.1.2-7	14
14.1.2-8	14
Text	
14.1.3-1 (Deleted)	13
14.1.4-1	15
14.1.4-2	15
14.1.4-3	14
Table	
14.1.4-1	13
14.1.4-2	13
Figure	
14.1.4-1	14
14.1.4-2	14

TABLE 4.1-2a

CHEMICAL ANALYSES IN WEIGHT PERCENT
REACTOR VESSEL SURVEILLANCE MATERIAL

Element	Intermediate Shell		Lower Shell	
	Unit 3	Unit 4	Unit 3	Unit 4
C	0.20	0.22	0.20	0.21
Mn	0.64	0.67	0.61	0.67
P	0.010	0.010	0.010	0.011
S	0.010	0.009	0.008	0.009
Si	0.26	0.20	0.20	0.23
Ni	0.70	0.71	0.67	0.70
Cr	0.40	0.33	0.38	0.31
V	0.02	0.002	0.02	0.001
Mo	0.62	0.56	0.58	0.56
Co	0.011	0.017	0.015	0.015
Cu	0.058	0.054	0.079	0.056
Zr	*0.001	0.005	*0.001	0.004
Sn	0.010	0.008	0.008	0.008
Ti	*0.001	*0.001	*0.001	*0.001
Sb	*0.001		*0.001	
Zn	0.001	*0.001	0.001	*0.001
As	*0.005	0.004	*0.005	0.005
B	*0.003	*0.003	*0.003	*0.003
Al	0.005	0.008	0.005	0.008
N^2	0.003	0.001	0.003	0.002
Nb		0.002		0.001
W		*0.001		*0.001
Pb		*0.001		0.001
Ta		0.003		0.002

* Not detected. The number indicates the minimum limit of detection.

Rev. 3-7/85

TABLE 4.1-3

PRESSURIZER AND PRESSURIZER RELIEF TANK DESIGN DATA

Pressurizer	
Design/Operating Pressure, psig	2485/2235
Hydrostatic Test Pressure (cold), psig	3107
Design/Operating Temperature °F	680/653
Water Volume, Full Power, ft^3 *	780
Steam Volume, Full Power, ft^3	520
Surge Line Nozzle Diameter, in./Pipe Schedule	14/Sch 140
Shell ID, in./Minimum Shell Thickness, in.	84/4.1
Mimimum Clad Thickness, in.	0.188
Electric Heaters Capacity, kw (total)	1300
Heatup rate of Pressurizer using Heaters only, °F/hr	55 (approximately)
Power Relief Valves: #455C & 456	
Number	2
Set Pressure (open), psig	
i) Normal operation	2335
ii) OMS Actuation during Heatup or Cooldown	
a) RCS ≤ 285°F	415 ±15
b) RCS > 285°F	Setpoint increases step-wise to 2335 psig as temperature increases to 750°F (See Table 4.1-1)
Capacity, lb/hr saturated steam/valve	179,000
Safety Valves	
Number	3
Set Pressure, psig	2485 ±1% (as left) +2%/-3% (as found)
Capacity, lb/hr saturated steam/valve	293,330
Pressurizer Relief Tank	
Design pressure, psig	100
Rupture disc release pressure, psig	100
Design temperature, °F	340
Normal water temperature, °F	120
Total volume, ft^3	1300
Rupture disc relief capacity, lb/hr	900,000

* 60% of net internal volume (maximum calculated power)

shows that failure could occur if vertical reinforcing were not provided. In fact, the maximum allowable vertical averaged tensile stress according to Taylor's interaction curve is

$$\frac{f_a}{f'_c} = 0.03$$

therefore, f_a = +150 psi. For this reason, special anchorage zone reinforcing is used in addition to that required by the loading cases. Such special reinforcing is based on the following considerations:

1. Full scale load tests of the anchorage on the same concrete mix used in the structure and review of prior uses of the anchorage.

2. The post-tensioning supplier's recommendations of anchorage reinforcing requirements.

3. Review of the final details of the combined reinforcing by the consulting firm of T. Y. Lin, Kulka, Yang and Associate.

For typical detailed Analysis, see Topical Report B-Top-2 dated October 1969, submitted in connection with Docket No. 50-255, a NON-PROPRIETARY report.

(b) Earthquake or Wind Loading

The stresses in the structure for the earthquake loading conditions exceed the stresses for design tornado or wind. The earthquake analysis is conducted in the following manner:

The loads on the containment structure caused by earthquake are determined by a dynamic analysis of the structure. The dynamic analysis is made on an idealized structure of lumped masses and weightless elastic columns acting as springs.

The analysis is performed in two stages; the determination of natural frequencies of the structure and its mode shapes, and the response of these modes to the earthquake by the spectrum response. For the supported equipment, piping, etc. a time history technique is used to develop the floor response spectrum curves, and the supported elements are then analyzed by the response spectrum method as discussed in Appendix 5A, Section III.

The natural frequencies and mode shapes are computed using the matrix equation of motion shown below for a lumped mass system. Matrix interation was performed by use of a digital computer program to yield the natural frequencies and mode shapes. The form of the equation is:

$$(K) \cdot (\Delta) = \omega^2 \cdot (M) \cdot (\Delta)$$

K = Matrix of stiffness coefficients including the combined effects of shear, flexure, rotation and horizontal translation.
M = Matrix of lumped masses
Δ = Matrix of mode shapes
ω = Angular natural frequency of vibration

The results of this computation are the several values of ω_n and mode shapes Δn for n = 1, 2, 3, ---m where m is the number of degrees of freedom (i.e., lumped masses) assumed in the idealized structure.

To obtain the loads on the containment structure the response of each mode of vibration to the design earthquake is computed by the response spectrum technique as follows:

newer structures, wind loads are as required by the edition of the South Florida Building Code applicable at the time of design. Shape Factors are applied in accordance with Reference 5A-4, or as required by the South Florida Building Code applicable at the time of design. No tornado loads are considered.

5A-1.4.2 Turkey Point Fossil Units 1 and 2 Chimney Design Requirements

The Fossil Unit 1 & 2 chimneys, located directly north of Unit 3, do not perform any safety related functions, or directly protect safety related equipment. However, failure of these structures has the potential of adversely affecting safety related systems. Accordingly, these structures have been designed to not fail and cause an adverse interaction with any safety related systems, when subjected to the Class I seismic loads (0.15 g) and wind loads (145 mph hurricane and 225 mph tornado) described in Sections 5A-1.3.4 and 5A-1.3.5 of this appendix.

5A-1.5 Miscellaneous Loads for Structures, Systems and Equipment

The units are designed for an outdoor temperature range of +30°F to +95°F. No ice or snow loads are considered in the design of the various structures and equipment.

External flood protection is described in Appendix 5G.

5A-2.0 METHOD OF SEISMIC ANALYSIS

5A-2.1 Structures

The methods for seismic analysis of the containment and control building structures are described in Section 5.1.3.2.

5A-2.2 Response Spectra

Response spectra curves for floors at grade and for the containment basemat were developed based on the El Centro, California, earthquake. These curves are shown in Figures 5A-1 for the design basis earthquake event (E), and Figure 5A-2 for the maximum earthquake event (E'). The analysis methodology is similar to the technique described in Section 5.1.3.2(b). (Reference 5A-3)

5A-2.3 Seismic Class I Piping Analysis

Seismic Class I piping systems are typically analyzed as mathematical models consisting of lumped masses connected by elastic members. The distance from

the pipe axis to the center of gravity of the valve and operator is considered, with the mass of the valve and operator, for all motor, air, or gear operated valves. When necessary for the integrity of the piping, valve, or operation, the valve structure is externally supported. The stiffness matrix for the pipe is developed to include the effects of torsional, bending, shear and axial deformations as well as change in flexibility due to curved members and internal pressure. Flexibility factors are calculated in accordance with USAS B31.1. System natural frequencies and mode shapes for all significant modes of vibration are then determined using equations of motion, and spectral accelerations as determined from the response spectra applied.

The following equations are successively used to determine the response for each mode, maximum displacement for each mode, and the total displacement for each mass point:

(1) $$Y_n(\max) = \frac{R_n Sa_n D}{M_n \omega_n^2}$$

(2) $$V_{in} = \varphi_{in} Y_n(\max)$$

(3) $$V_i = \sqrt{\Sigma V_{in}^{\ 2}}$$

where:

$Y_n(max)$ = response of the n^{th} mode

R_n = participation factor for the n^{th} mode = $\Sigma M_i \phi_{in}$

M_i = mass i

ϕ_{in} = mode shape i for n^{th} mode

Sa_n = spectral acceleration for the n^{th} mode

D = earthquake direction matrix

M_n = generalized mass matrix for the n^{th} mode = $\Sigma M_i \phi^2_{in}$

ω_n = angular frequency of the n^{th} mode

V_{in} = maximum displacement of mass i for mode n

V_i = maximum displacement of mass i due to all modes calculated

9.5.3 SYSTEM EVALUATION

Underwater transfer of spent fuel provides essential ease and corresponding safety in handling operations. Water is an effective, economic and transparent radiation shield and a reliable cooling medium for removal of decay heat.

Basic provisions to ensure the safety of refueling operations are:

a) Gamma radiation levels in the containment, control room and fuel storage areas are continuously monitored (see Section 11.2.3). These monitors provide an audible alarm at the initiating detector indicating an unsafe condition. Continuous monitoring of reactor neutron flux provides immediate indication and alarm in the control room of an abnormal core flux level.

b) Containment integrity is maintained when core alterations or movement of irradiated fuel occurs inside the containment.

c) Whenever any fuel is being added to the reactor core or is being relocated, a reciprocal curve of source neutron multiplication is recorded to verify the subcriticality of the core.

Incident Protection

Direct communication between the control room and the refueling cavity manipulator crane is required whenever changes in core geometry which affect criticality are taking place. This provision allows the control room operator to inform the manipulator crane operator of any impending unsafe conditions detected from the control board indicators during fuel movement.

Malfunction Analysis

An analysis is presented in Section 14 concerning damage to one complete outer row of fuel elements in an assembly, assumed as a conservative limit for evaluating environmental consequences of a fuel handling incident.

9.5.4 TEST AND INSPECTION CAPABILITY

Upon completion of core loading and installation of the reactor vessel head, certain mechanical and electrical tests can be performed prior to initial criticality. The electrical wiring for the rod drive circuits, the rod position indicators, the reactor trip circuits, the in-core thermocouples and the reactor vessel head water temperature thermocouples can be tested at the time of installation. The tests can be repeated on these electrical items before initial operation.

9.5.5 REFERENCE

1. Turkey Point Unit 4 Plant Change Modification (PC/M) 05-066, "Turkey Point Unit 4 Cycle 16 Reload," Revision 2, dated March 6, 1996.

9.5.4 TEST AND INSPECTION CAPABILITY

Upon completion of core loading and installation of the reactor vessel head, certain mechanical and electrical tests can be performed prior to initial criticality. The electrical wiring for the rod drive circuits, the rod position indicators, the reactor trip circuits, the in-core thermocouples and the reactor vessel head water temperature thermocouples can be tested at the time of installation. The tests can be repeated on these electrical items before initial operation.

Appendix A Guidelines	Plant Conformance	Alternatives	Remarks
G.4 Materials Containing Radioactivity			
Materials that collect and contain radioactivity such as spent ion exchange resins, charcoal filters, and HEPA filters should be stored in closed metal tanks or containers that are located in areas free from ignition sources or combustibles. These materials should be protected from exposure to fires in adjacent areas as well. Consideration should be given to requirements for removal of isotopic decay heat from entrained radioactive materials.	Materials containing or collecting radioactivity are stored in closed metal containers in areas free of ignition sources or combustibles. Rated fire barriers are provided to preclude exposure to fire in adjacent areas. Requirements for control of decay heat are developed for specific storage materials, as required.		

2.5 CONFORMANCE TO 10 CFR PART 50 APPENDIX R REQUIREMENTS

The information which follows is a lineup of the Turkey Point Units 3 and 4 designs against the requirements of Appendix R to 10 CFR Part 50. Also see the lineup against BTP Appendix A presented in Section 2.4 of this Appendix.

Appendix R requirements are given in the first (left-hand) column of the following tabulations, retaining the numbering sequence of Appendix R. Information on various aspects of the Turkey Point Units 3 and 4 Fire Protection Program is given in the second column as necessary to demonstrate conformance to the Appendix R Requirements, or in the third column to describe alternative approaches. The fourth column provides supplemental information as appropriate.

Based on the criteria established in 10 CFR Part 50.48, Turkey Point Units 3 and 4 are required to conform only to Sections III.G, III.J, and III.O of Appendix R. Additional Sections requiring conformance as a result of prior NRC review and acceptance of Turkey Point Units 3 and 4 design with respect to BTP APCSB 9.5-1 Appendix A are III.A, III.H, III.I and III.L. All other Sections of Appendix R are not applicable to Turkey Point Units 3 and 4.

TABLE OF CONTENTS (Continued)

LIST OF TABLES

12. CONDUCT OF OPERATIONS

12.1 Organization and Responsibility

This section covered the positions and personnel at the time of initial plant startup and operation. This information can be found in the original docketed FSAR and this is also addressed in the plant operating license (Technical Specifications).

12.2 Training

This section covered the training program at the time of initial plant startup and operation. This information can be found in the original docketed FSAR and this is also addressed in the Technical Specifications.

12.3 Procedures

The operating procedures for startup, normal operations, and anticipated emergency operating conditions is addressed in the original docketed FSAR and current requirements indicated in the Technical Specifications. The Emergency Plan in effect for Turkey Point is issued as a separate document.

12.4 Records

The procedure for maintaining plant operating, maintenance, QA, personnel, training, and instrumentation and control record is addressed in the original docketed FSAR and current requirements indicated in the Technical Specifications.

12.5 Administrative Control

The necessary administrative procedures are addressed in the original docketed FSAR and current requirements indicated in the Technical Specifications.

12.6 Plant Security Plan

Turkey Point maintains a Plant Security Plan and is issued as a separate document.