



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

May 27, 2009

LICENSEE: Florida Power & Light

FACILITY: Turkey Point Nuclear Plant, Units 3 and 4

SUBJECT: SUMMARY OF APRIL 24, 2009, CATEGORY 1 MEETING WITH FLORIDA POWER & LIGHT, TO DISCUSS TURKEY POINT NUCLEAR PLANT'S PROPOSED ALTERNATIVE SOURCE TERM LICENSE AMENDMENT REQUEST

On April 24, 2009, a public meeting was held between the Nuclear Regulatory Commission (NRC), and representatives of Florida Power & Light (FPL), Turkey Point, at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, MD. The purpose of this presubmittal meeting was to achieve a common understanding between the Agency and Turkey Point of the proposed scope of the Turkey Point Alternative Source Term (AST) application, gain clarification regarding regulatory positions on specific issues relating to the AST, and understand the level of detail of information expected in the application.

The licensee presented information on the reason for adopting AST, which are to update the Turkey Point Units 3 and 4 accident dose analyses using a consistent basis for all events as described by Regulatory Guide (RG) 1.183 and to support a future extended power uprate (EPU). During the presentation the staff communicated to the licensee examples of good submittals that FPL should review for precedence. The licensee continued with the presentation by stating the specific aspects of the analyses and content of their submittal. A couple of the specific aspects that will be included in the submittal are Turkey Point specific source term inventories calculated using ORIGEN 2, which considers conservative burnup ranges, enrichment ranges, and power levels (bounds both current operating conditions and future EPU operating conditions), updated control room and offsite X/Q values based upon RG 1.194 and RG 1.145 using recent meteorological data, and the loss-of-coolant accident dose contribution from the emergency core cooling system back-leakage to the refueling water storage tank considering the effects of sump pH, back-leakage temperature reduction, and total iodine distribution within the tank.

The staff questioned what version of ORIGEN was used to calculate the source term. This was to determine the specific methodology that was used to calculate the source term and to clarify that the licensee consistently used one version. The licensee indicated that they used ORIGEN 2.1 and the staff was satisfied with this version. The licensee continued the presentation by stating the proposed technical specification changes that will be included in the AST license amendment request (LAR).

The licensee concluded the presentation by communicating to the NRC the planned schedule for the AST and EPU LARs. Turkey Point plans to submit the AST LAR in June 2009 and the EPU LAR in the 2nd quarter of 2010. The staff questioned if the EPU LAR would be submitted after the review of the AST is completed. Turkey Point responded that the EPU would be submitted approximately in June 2010 after the completion of the AST review, assuming a 1 year AST review.

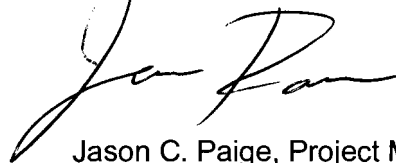
- 2 -

Members of the public were not in attendance. A representative from Turkey Point filled out a Public meeting feedback form and was satisfied with the outcome of the meeting.

A list of meeting attendees is attached. Also, a copy of the licensee's slides can be found in ADAMS, Accession Number ML091160002.

Please direct any inquiries to Jason Paige at 301-415-5888, or Jason.Paige@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Jason Paige", with a stylized flourish at the end.

Jason C. Paige, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: List of Attendees

cc w/encl: Distribution via ListServ

LIST OF ATTENDEES
APRIL 24, 2009, MEETING WITH
FLORIDA POWER & LIGHT
ALTERNATIVE SOURCE TERM REQUEST FOR TURKEY POINT
LICENSE AMENDMENT PRE-SUBMITTAL MEETING

<u>NAME</u>	<u>ORGANIZATION</u>
Eva Brown	NRC/NRR/DORL/LPL2-2
Lois James	NRC/NRR/DORL/LPL3-1
Leta Brown	NRC/NRR/DRA/Accident Dose Branch
Tony Nakanishi	NRC/NRR/DSS/Reactor Systems Branch
Aleem Boatright	NRC/NRR/DRA/Accident Dose Branch
Robert Taylor	NRC/NRR/DRA/Accident Dose Branch
John Parillo	NRC/NRR/DRA/Accident Dose Branch
Greg Myers	Florida Power & Light
Liz Abbott	Florida Power & Light
Mark Pope (by phone)	Nuclear Energy Institute
Steve Hale	Florida Power & Light
Brenda Mozafari	NRC/NRR/DORL/LPL2-2
Allen Howe	NRC/NRR/DORL

Enclosure



**ALTERNATIVE SOURCE TERM (AST)
Request for License Amendment
Pre-Submittal Meeting**

**Turkey Point Units 3 and 4
April 24, 2009**

Turkey Point Units 3 and 4 – Alternative Source Term

ATTENDEES FOR FPL

- Liz Abbott FPL EPU Director
- Greg Myers FPL EPU Manager
- Steve Hale FPL EPU Manager
- Jim Harrell Contractor (Numerical Applications, Inc.)

Turkey Point Units 3 and 4 – Alternative Source Term

PURPOSE OF PRE-SUBMITTAL MEETING

- Achieve common understanding of the proposed scope of the Turkey Point application
- Gain understanding regarding regulatory positions on specific issues
- Understand the level of detail of information expected in the application

Turkey Point Units 3 and 4 – Alternative Source Term

AGENDA

- Reason for Adopting Alternate Source Term (AST)
- Scope of Implementation
- Specific Aspects of Analyses
- Overview of Licensing Basis Changes
- Proposed Technical Specification Changes
- Submittal Content
- Schedules
- Summary

Turkey Point Units 3 and 4 – Alternative Source Term

REASON FOR ADOPTING AST METHODOLOGY

- To update Turkey Point Units 3 and 4 accident dose analyses using a consistent basis for all events as described by Regulatory Guide 1.183
- To obtain margin for Control Room inleakage
- To support a future extended power uprate

Turkey Point Units 3 and 4 – Alternative Source Term

SCOPE OF IMPLEMENTATION

- Full implementation of AST as described by RG 1.183
- Postulated events analyzed
 - Loss-of-Coolant Accident
 - Fuel Handling Accident
 - Separate analysis for Containment and Fuel Handling Building Releases
 - Main Steam Line Break
 - No Fuel Damage postulated
 - Pre-Accident and Concurrent Iodine Spikes

Turkey Point Units 3 and 4 – Alternative Source Term

SCOPE OF IMPLEMENTATION

- Postulated events analyzed (continued)
 - Steam Generator Tube Rupture
 - No Fuel Damage postulated
 - Pre-Accident and Concurrent Iodine Spikes
 - Considers pre-trip releases via condenser and post-trip releases via Steam Generator
 - Locked Rotor
 - Postulated Fuel Damage
 - Rod Cluster Control Assembly Ejection
 - Containment and Secondary Release Events
 - Postulated Fuel Damage

Turkey Point Units 3 and 4 – Alternative Source Term

SCOPE OF IMPLEMENTATION

- Postulated events analyzed (continued)
 - Waste Gas Decay Tank Rupture
 - Utilizes Exclusion Area Boundary Limit of 0.1 rem TEDE consistent with RIS 2006-04
 - Spent Fuel Cask Drop
 - Postulated fuel damage

Turkey Point Units 3 and 4 – Alternative Source Term

SPECIFIC ASPECTS OF THE ANALYSES

- AST analysis approach in accordance with RG 1.183
- Turkey Point specific source term inventories calculated using ORIGIN 2
 - Considers conservative burnup ranges, enrichment ranges and power levels
 - Bounds both current operating conditions and future extended power uprate operating conditions (2652 MWt, including calorimetric uncertainties)
- Updated control room and offsite X/Q values based upon Reg. Guide 1.194 and Reg. Guide 1.145 using recent meteorological data

Turkey Point Units 3 and 4 – Alternative Source Term

SPECIFIC ASPECTS OF THE ANALYSES (cont)

- 10% of the total iodine activity in the ECCS leakage outside containment assumed airborne
- LOCA dose contribution from the ECCS back-leakage to RWST considers the effects of sump pH, back-leakage temperature reduction, and total iodine distribution within the tank
- Analysis inputs and atmospheric steam releases are set conservatively to bound current plant operating conditions and future extended power uprate operating conditions (2652 MWt, including calorimetric uncertainties)

Turkey Point Units 3 and 4 – Alternative Source Term

SPECIFIC ASPECTS OF THE ANALYSES (cont)

- Analyses support implementation of AST at current power level, independent of EPU
- Preliminary dose analyses support increased Control Room unfiltered inleakage rates
 - Control Room inleakage testing performed in August 2003 indicated less than 10 cfm of unfiltered inleakage
 - Control Room is shared between Units 3 and 4
 - 150 cfm unfiltered inleakage assumed
- Containment sump pH will be confirmed via calculations considering NUREG/CR-5950

Turkey Point Units 3 and 4 – Alternative Source Term SPECIFIC ASPECTS OF THE ANALYSES (cont)

Turkey Point AST Evaluation Preliminary Results

<u>Event</u>	<u>EAB</u>	<u>LPZ</u>	<u>CR</u>
LOCA	5.66	1.54	4.81
FHA – in Containment	0.91	0.20	1.01
FHA – in Fuel Handling Building	0.91	0.20	3.95
MSLB – Pre-accident iodine spike	0.029	0.024	1.49
MSLB – Concurrent iodine spike	0.046	0.041	1.54
SGTR – Pre-accident iodine spike	0.82	0.18	2.85
SGTR – Concurrent iodine spike	0.28	0.07	1.10

All units are rem TEDE

Turkey Point Units 3 and 4 – Alternative Source Term

SPECIFIC ASPECTS OF THE ANALYSES (cont)

Turkey Point AST Evaluation Preliminary Results

<u>Event</u>	<u>EAB</u>	<u>LPZ</u>	<u>CR</u>
Locked Rotor	0.57	0.60	1.48
RCCA Ejection – Containment	0.88	0.40	2.34
RCCA Ejection – Secondary	0.59	0.56	1.32
Waste Gas Decay Tank Rupture	0.08	0.02	0.04
Spent Fuel Cask Drop	0.26	0.06	2.51

All units are rem TEDE.

Turkey Point Units 3 and 4 – Alternative Source Term

SPECIFIC ASPECTS OF THE ANALYSES (cont)

Consideration of High Burnup Rods for Fuel Handling Accident

- To assure that failure of any offloaded fuel assembly is bounded by the Fuel Handling Accident, all of the rods in a single fuel assembly are conservatively assumed to exceed the burnup limits upon which the Reg. Guide 1.183 gap release fractions are based
- Guidance of NUREG/CR-5009 is used to determine the conservative gap release fractions
 - NUREG/CR-5009 endorses the gap release fractions for fuel handling events outlined in Reg. Guide 1.25 with some modification for higher burnups

Turkey Point Units 3 and 4 – Alternative Source Term

OVERVIEW OF ANTICIPATED LICENSING BASIS CHANGES

- The total effective dose equivalent (TEDE) acceptance criterion of 10CFR50.67(b)(2) replaces the previous whole body and thyroid dose guidelines of 10CFR100.11
- New onsite (Control Room) and offsite atmospheric dispersion factors are developed
- Dose conversion factors for inhalation and submersion are from Federal Guidance Reports (FGR) Nos. 11 and 12, respectively

Turkey Point Units 3 and 4 – Alternative Source Term

OVERVIEW OF ANTICIPATED LICENSING BASIS CHANGES (cont)

- A bounding value for control room unfiltered air inleakage was established by increasing the inleakage until the dose acceptance criteria for the limiting event (LOCA) was approached
- A primary coolant specific activity for Dose Equivalent I-131 that is more restrictive than the current Technical Specification limit is utilized
- A steam generator tube leakage rate is used that is more restrictive than the current Technical Specification program limit for primary-to-secondary accident induced leakage

Turkey Point Units 3 and 4 – Alternative Source Term

OVERVIEW OF ANTICIPATED LICENSING BASIS CHANGES (cont)

- A containment leakage value that is more restrictive than the current Technical Specification limit is utilized
- Sump pH control is provided by sodium tetraborate decahydrate (NaTB) baskets
- Containment ESF filter units are not credited
- In accordance with TSTF-490, the Reactor Coolant System specific activity limit for gross radioactivity is changed from 100/E-bar to dose equivalent Xenon-133
 - The 100/E-bar value is directly converted to dose equivalent Xenon-133, so this change is not required to implement AST

Turkey Point Units 3 and 4 – Alternative Source Term

PROPOSED PHYSICAL PLANT CHANGES

- The Control Room Emergency Intakes are proposed to be relocated to reduce control room doses and support development of updated control room X/Q values
- Sodium tetraborate decahydrate (NaTB) baskets are proposed to be added to the containment for pH control

Turkey Point Units 3 and 4 – Alternative Source Term

PROPOSED TECHNICAL SPECIFICATION CHANGES

- Definition of Dose Equivalent I-131 in Section 1.10 is revised to reference Federal Guidance Report No. 11 (FGR 11), “Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion” 1989, as the source of effective dose conversion factors.
- Reactor Coolant System (RCS) specific activity limit for dose equivalent Iodine-131 (DE I-131), stated in Limiting Condition for Operation (LCO) 3.4.8.a, is reduced from 1 microcurie per gram to 0.25 microcurie per gram.

Turkey Point Units 3 and 4 – Alternative Source Term

PROPOSED TECHNICAL SPECIFICATION CHANGES (cont)

- Reactor Coolant System specific activity limit for gross radioactivity stated in Limiting Condition for Operation (LCO) 3.4.8.b is changed from 100/E-bar to dose equivalent Xenon-133.
- Terminology used in Limiting Condition for Operation (LCO) 3.7.9 to set the maximum contents of the Waste Gas Decay Tank is clarified to read 'DOSE EQUIVALENT Xe-133.'

Turkey Point Units 3 and 4 – Alternative Source Term

PROPOSED TECHNICAL SPECIFICATION CHANGES (cont)

- Maximum allowable containment leakage rate acceptance criterion stated in TS 6.8.4.h, “Containment Leakage Rate Testing Program,” is reduced from 0.25% to 0.20% of containment air weight per day.
- Maximum allowable primary-to-secondary accident induced leakage rate acceptance criterion stated in TS 6.8.4.j.b.2, “Steam Generator Program,” is reduced from 500 gpd to 300 gpd through any one steam generator.

Turkey Point Units 3 and 4 – Alternative Source Term

PROPOSED TECHNICAL SPECIFICATION CHANGES (cont)

- A method for controlling the pH of the post-LOCA containment sump solution using sodium tetraborate decahydrate (NaTB) is being proposed. This passive system will consist of baskets of NaTB in the lower regions of the containment. Appropriate Technical Specifications and Surveillance Requirements are proposed for Section 3/4.6 “Containment Systems.”
- Operability requirements for emergency containment filter units in Section 3/4.6.3 will be deleted.

Turkey Point Units 3 and 4 – Alternative Source Term

SUBMITTAL CONTENT

- Licensing Technical Report which presents the analysis assumptions and documents conformance with Reg. Guide 1.183
- Table addressing NRC Regulatory Issue Summary 2006-04 issues
- Analyses key input parameters and results tables
- Technical Specification changes
- No Significant Hazards Considerations Evaluation
- Plant modification descriptions

Turkey Point Units 3 and 4 – Alternative Source Term

SCHEDULE

- Planned AST Request for License Amendment (RLA) submittal in June 2009
 - AST RLA provides dose analysis to support EPU
- Planned EPU RLA submittal in 2nd quarter of 2010
 - EPU RLA will reference AST analyses provided in AST RLA
 - Second review of dose analyses will not be required for EPU

Turkey Point Units 3 and 4 – Alternative Source Term

SUMMARY

- Addresses control room inleakage margin
- Conformance with RG 1.183
- Addresses NRC RIS 2006-04 concerns
- Utilizes conservative inputs to bound current operating conditions and planned future extended power uprate operating conditions
- Can be implemented at current power level
- Planned submittal in June 2009

April 13, 2009

MEMORANDUM TO: Thomas H. Boyce, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing

FROM: Jason Paige, Project Manager /RA/
Plant Licensing Branch II-2
Division of Operating Reactor Licensing

SUBJECT: TURKEY POINT NUCLEAR PLANT, UNITS 3 AND 4 - FORTHCOMING
MEETING WITH FLORIDA POWER & LIGHT COMPANY

DATE & TIME: Friday, April 24, 2009
10:00 a.m. – 12:00 p.m.

LOCATION: U.S. Nuclear Regulatory Commission (NRC)
One White Flint North
11555 Rockville Pike, Room O-6B6
Rockville, Maryland

PURPOSE: The purpose of this pre-submittal meeting is to achieve a common understanding between the NRC and Florida Power & Light (FPL) of the proposed scope of the Turkey Point Alternative Source Term (AST) application, gain clarification regarding regulatory positions on specific issues relating to the AST, and understand the level of detail of information expected in the application.

CATEGORY 1: * This is a Category 1 meeting. The public is invited to observe this meeting and will have one or more opportunities to communicate with the NRC after the business portion but before the meeting is adjourned. Members of the public who wish to attend are encouraged to telephone or e-mail the contact listed below.

MEETING CONTACTS: Jason Paige, NRR Brenda Mozafari, NRR
301-415-5888 301-415-2020
jason.paige@nrc.gov brenda.mozafari@nrc.gov

*Commission's Policy Statement on "Enhancing Public Participation in NRC Meetings" (67 FR 36920), May 28, 2002. The NRC provides reasonable accommodation to individuals with disabilities where appropriate. If you need a reasonable accommodation to participate in a meeting, or need a meeting notice or a transcript or other information from a meeting in another format (e.g., Braille, large print), please notify the NRC's meeting contact. Determinations on requests for reasonable accommodation will be made on a case-by-case basis.

PARTICIPANTS: Participants from the NRC include members of the Office of Nuclear Reactor Regulation (NRR).

NRC		FPL	
J. Paige, NRR	T. Boyce, NRR	E. Abbott, FPL	B. Tomonto, FPL
R. Taylor, NRR	B. Mozafari, NRR	G. Myers, FPL	
L. Brown, NRR		J. Harrell, FPL	

Docket Nos. 50-250 and 50-251

Enclosure: Agenda

cc w/enclosure: Distribution via Listserv

AGENDA

FORTHCOMING MEETING WITH FLORIDA POWER & LIGHT

TURKEY POINT NUCLEAR PLANT, UNITS 3 AND 4

Meeting on Friday, April 24, 2009

10:00 a.m. – 12:00 p.m.

- Introductions
- Reason for Adopting the Alternative Source Term
- Scope of Implementation
- Specific Aspects of the Analyses
- Overview of Changes to the Licensing Basis
- Proposed Technical Specification Changes
- Submittal Content
- Schedules
- Summary
- Public Participation and Adjournment

Enclosure

Members of the public were not in attendance. A representative from Turkey Point filled out a Public meeting feedback form and was satisfied with the outcome of the meeting.

A list of meeting attendees is attached. Also, a copy of the licensee's slides can be found in ADAMS, Accession Number ML091160002.

Please direct any inquiries to Jason Paige at 301-415-5888, or Jason.Paige@nrc.gov.

Sincerely,

/RA/

Jason C. Paige, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: List of Attendees

cc w/encl: Distribution via ListServ

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NAME	JPaige	BMozafari	BClayton	RTaylor	TBoyce
DATE	05/27/09	05/20/09	05/14/09	05/20/09	05/27/09

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