Turkey Point Units 3 & 4 Extended Power Uprate (EPU) NRC and FPL Public Meeting

June 23, 2011

Agenda

- **Opening**
- **Purpose**
- **EPU License Amendment Request (LAR) Review Summary**
- **Proposed Technical Specification Changes**
- **Mechanical and Civil Outstanding Questions**
- **Nuclear Performance and Code Review**
  - Boron Precipitation Analysis Discussion
- **Containment and Ventilation EPITOME Analysis**
- **Reactor Systems Branch Questions**
- **Questions**
- **Closing**

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Turkey Point -- Opening

- Appreciate the Staff's support and participation today
- Significant progress made to date
- FPL seeks clarification and understanding of remaining Staff questions
- Encourage open and active dialogue to address open items from the Staff's review

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Turkey Point -- Purpose

- Review status of Requests for Additional Information (RAIs)
- Discuss remaining questions and/or open items
- Discuss "to go" plan for final draft safety evaluation (SE) to Advisory Committee on Reactor Safeguards (ACRS)

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EPU LAR Review Summary

- **6 draft SEs are complete for the 17 branches**
- **4 draft SEs are in branch concurrence**
- **Draft Environmental Assessment scheduled for 7/15/11**
- **Focus today is to resolve any questions and/or open items remaining**
  - Technical Specifications – Confirm no questions or comments on proposed Technical Specifications
  - Mechanical and Civil Engineering – Follow-up questions
  - Nuclear Performance and Code – PHOENIX-P/ANC benchmarking and boron precipitation
  - Containment and Ventilation – EPITOME issue
  - Reactor Systems – outstanding RAIs and RETRAN deck

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Proposed Technical Specification Changes – See Handout

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Mechanical and Civil Engineering

- **Received 6 follow-up RAIs on 6/20/11**
  - Spent Fuel Pool Cooling and Component Cooling Water modification design information
  - Normal containment cooler modification design information
  - Containment penetration anchor margins
  - Use of actual material properties for reactor vessel supports
  - Allowable stresses for control rod drive mechanisms
  - Steam Generator fluid steam mixture velocity information
- **Clarification discussion today**
- **Preparing responses with a target of mid July 2011**

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Nuclear Performance and Code Review

- **Providing additional information regarding PHOENIX-P/ANC benchmarking – Target early July**
- **Boric Acid Precipitation**
  - Status of NRC confirmatory analysis
  - Discuss and reach agreement on anticipated FPL actions based on lessons learned from the Point Beach EPU
    - -- Summarize conservatisms in the analysis
    - -- Provide additional discussion on operational considerations for small break LOCAs
    - -- Confirmation that charging pumps trip on safety injection
    - -- Provide at least 1 hour of margin between lineup for hot leg injection and the onset of boron precipitation
    - -- Other actions?

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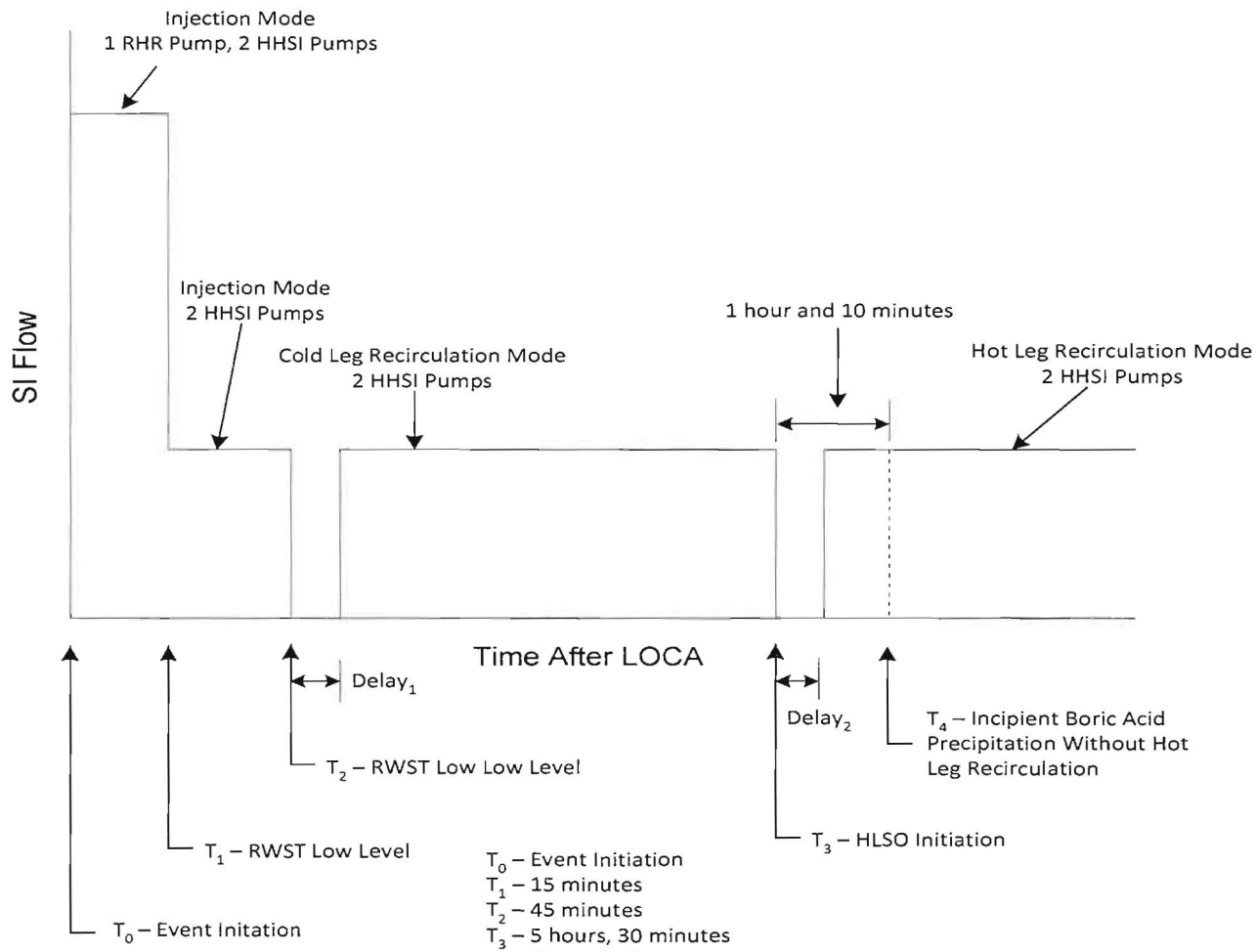
Nuclear Performance and Code Review

Boric Acid Precipitation Timeline



Containment and Ventilation – EPITOME Analysis

- **EPITOME code error involves LOCA mass and energy release calculation**
- **Turkey Point containment analysis is impacted**
- **Plant operability has been addressed**
- **EPU LOCA and MSLB analyses performed**
  - EPITOME code error correction
  - Range for containment free volume
- **Technical specification change proposed to lower limit on normal operating containment pressure from 3 psig to 1 psig**
  - Include ITS improvement for administrative control of instrument air bleed

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Containment and Ventilation – EPITOME Analysis

- **Other changes**
  - Modify the Emergency Containment Cooler (ECC) Start Logic to ensure 2 ECCs operate (new commitment)
  - Reduce upper operating band on T_{avg} from 3°F to 1.5°F
  - Other input changes

- **Draft Results**

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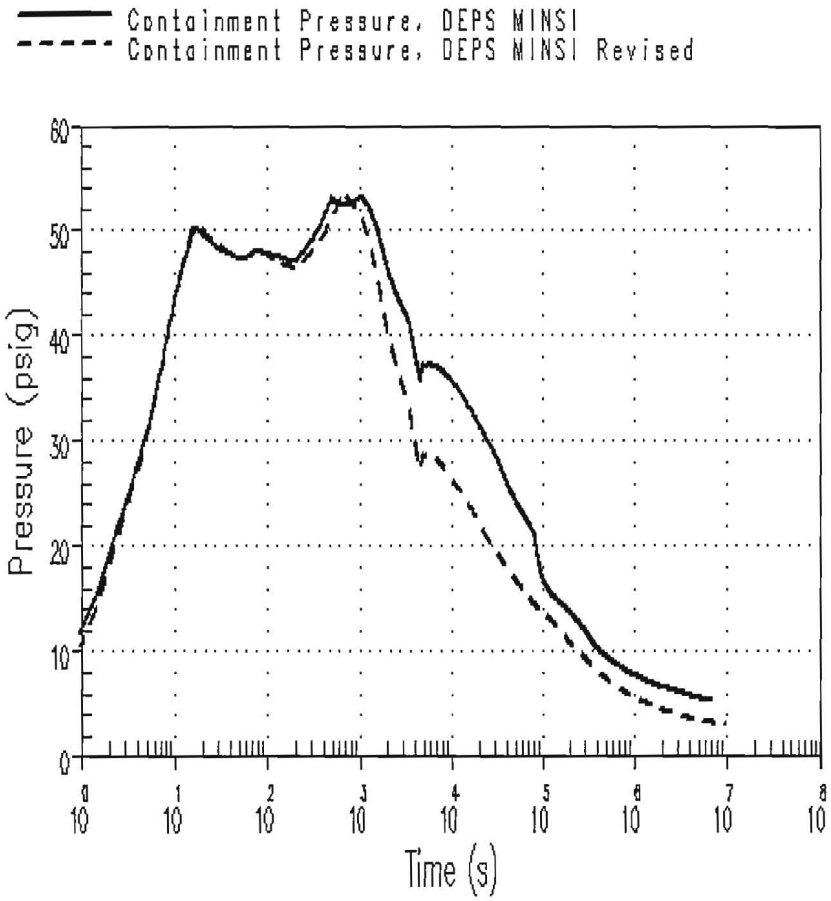
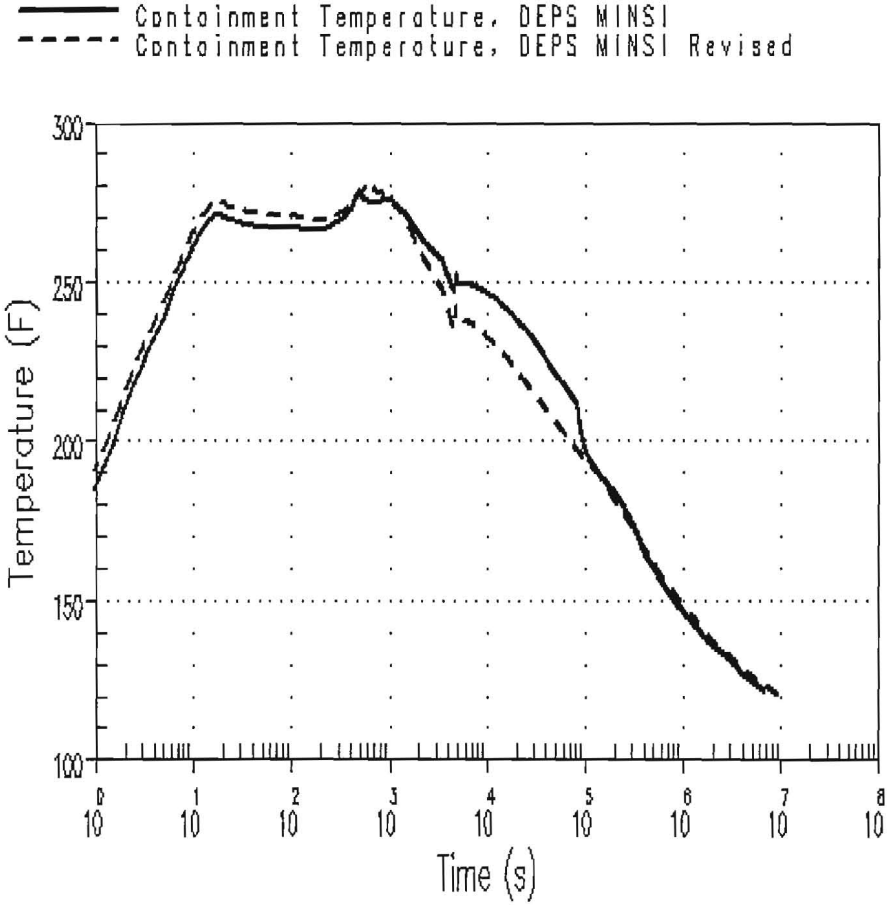
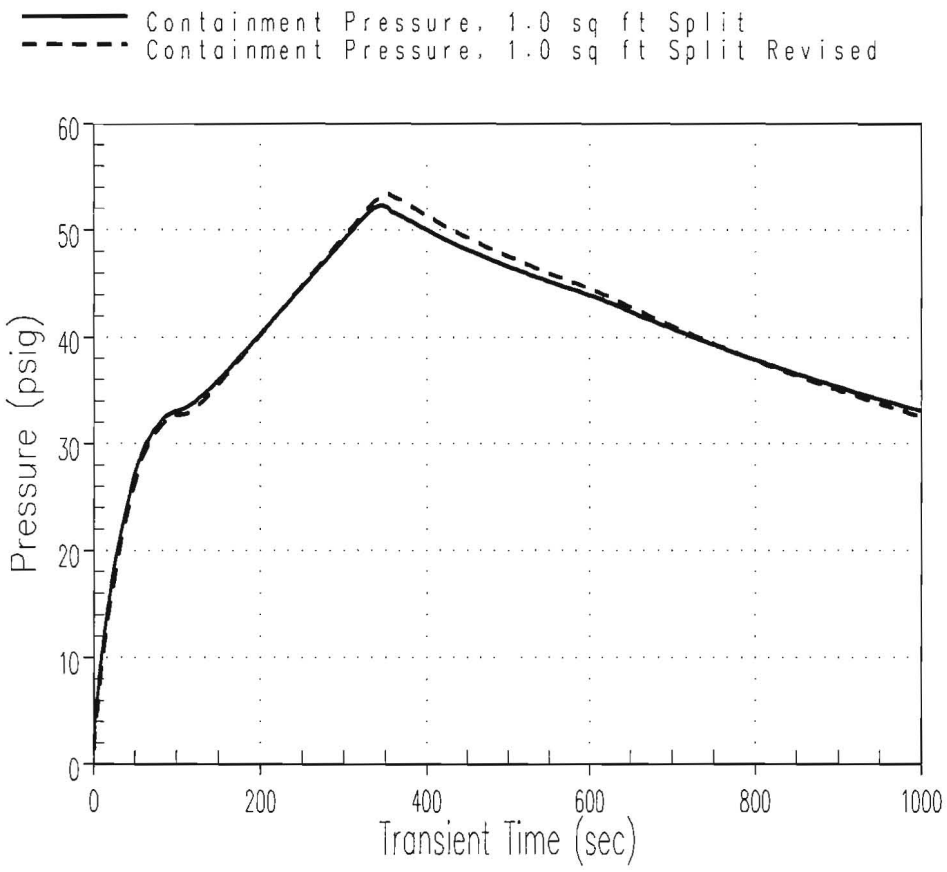
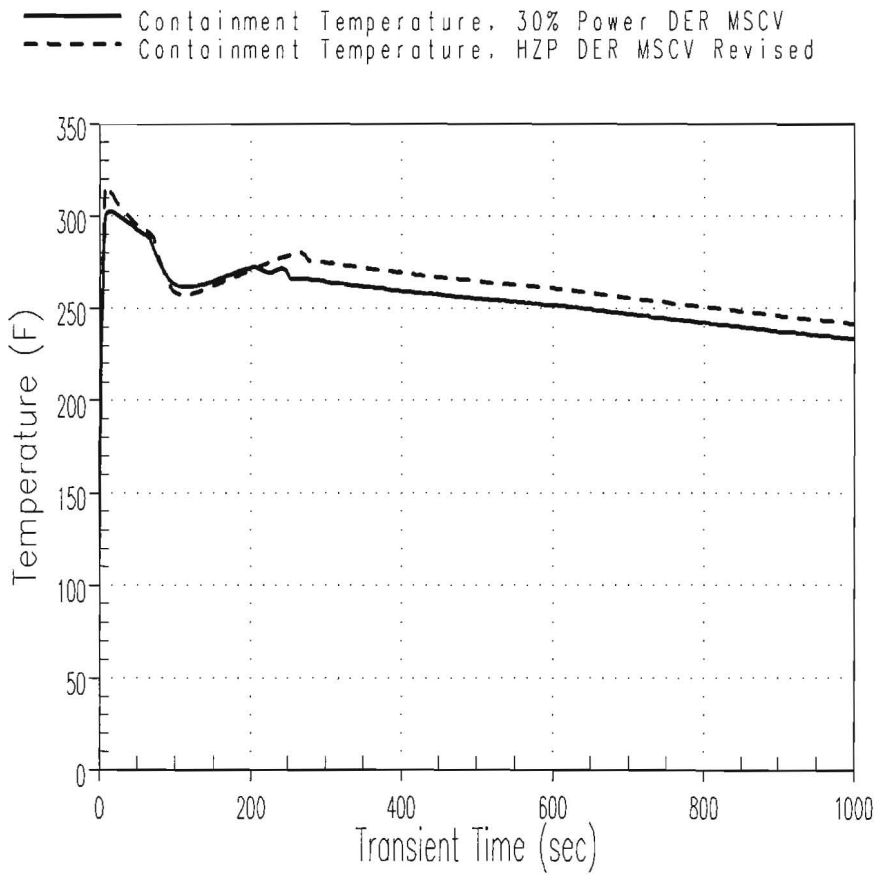
Containment and Ventilation – EPITOME LOCA—Draft Results





Containment and Ventilation – EPITOME MSLB—Draft Results





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Containment and Ventilation – EPITOME

- **Areas requiring revised analysis (applicable LAR sections in parentheses)**
  - Component Cooling Water Systems (2.5.4.3)
  - Primary Containment Functional Design (2.6.1)
  - Mass and Energy Release (2.6.3)
  - Containment Heat Removal (2.6.5)

- **Determined to be acceptable**

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Containment and Ventilation – EPITOME

- **Other areas reviewed and determined no impact (applicable LAR sections in parentheses)**
  - Protective Coating Systems (2.1.7)
  - Balance of Plant Piping, Components and Supports (2.2.2.2)
  - Safety-Related Valves and Pumps (2.2.4)
  - Environmental Qualification of Electrical Equipment (2.3.1)
  - Pressure Analysis for ECCS Performance Capability (2.6.6)
  - Containment Ventilation System (2.7.7)
  - ECCS and Loss-of-Coolant Accidents (2.8.5.6.3)
  - Radiological Consequences Analyses Using AST (2.9.2)

- **No change to LAR section conclusions for impact of EPU**

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Containment and Ventilation – EPITOME

- **Outline of Response Letter – See handout**

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Reactor Systems Branch Questions

- **Received 31 non-LOCA RAIs on 6/10/11**
  - Conducted clarification call on 6/20/11
  - Preparing responses with a target issue of mid-July 2011
- **Further discussion on the following:**
  - NUREG 0800 requirement regarding credited reactor trips for loss of load analysis
  - Analysis of credible main steamline breaks
  - CVCS malfunction in Modes 3, 4, and 5

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Reactor Systems Branch Questions

- **Received additional RAIs:**
  - 10 on 6/14/11
  - 7 on 6/17/11
  - Anticipate remaining questions by 6/23/11
  - Clarification discussion today
  - Preparing responses with a target of mid July 2011
- **Further discussion on the following:**
  - Inadvertent opening of a PORV
  - Additional information regarding LBLOCA nodalization

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Reactor Systems Branch Questions

- **RETRAN Deck**
  - Modified Turkey Point base deck to be compatible with RETRAN 3D
  - Westinghouse transmitted to NRC on 6/21/11
  - Personnel available today to assist the Staff with running RETRAN with the modified base deck to ensure its compatibility with Staff software

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Turkey Point – Questions

- **Questions from other branches or other review areas?**

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Turkey Point – Closing

- FPL respond to remaining RAIs and clarification requests
- Staff to complete remaining draft SE input
- Draft SE to ACRS Subcommittee in August
- Prepare for ACRS Subcommittee meeting in September and ACRS Full Committee meeting in October

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