



RPS/ESPS
Licensing Amendment Request

Oconee Nuclear Station

April 6, 2005



Agenda

- ❖ Opening Remarks
- ❖ Project Status
- ❖ RPS/ESPS Modification
- ❖ Diverse LPI actuation
- ❖ Discrepancy between TXS TR and SER
- ❖ Risk-informed D3
- ❖ NRC Questions
- ❖ Closing Remarks



Opening Remarks

- ❖ Introductions
- ❖ Purpose of Meeting & Expected Outcome
 - Meeting Purpose
 - NRC questions
 - Communicate details of proposed LAR
 - Expected Outcome
 - Address preliminary questions from NRC
 - Good mutual understanding of proposed LAR and RPS/ES modification



Project Status

❖ Project Activities Completed

➤ 30% Owners Review of FANP

- Initial Scope Document
- Engineering Turnover
- Technical Issues Checklist (Multi-Discipline Interface Identifier)
- Project Change Order Reconciliation
- Design Document Red Marks

➤ Procedure Writers Training

- 3 Week Intensive training on TXS for procedure revisions

❖ Upcoming Major Project Activities

- Beznau NPP Benchmark Trip – Mid July 2005
- FANP-NGL Hardware FAT in Germany – November 2005
- FANP-NGL TXS Equipment @ ONS – December 2005
- FANP-Alpharetta TXS FAT @ ONS – January thru March 2006
- FANP Lynchburg RCPPM & NI FAT @ ONS – January thru March 2006
- ONS SAT – April 2006 through September 2006



Project Status

- ❖ Upcoming Project Activities (Continued)
 - Procedure Verification & Validation – August thru September 2006
 - Implementation – October thru November 2006
 - Post Implementation Testing – Late November 2006
 - Unit 1 Return to Service – Early December 2006
- ❖ Numerous Internal Project Deliverables Through April 2006



RPS/ESPS Mod.

❖ Modification Description

- Replacement of Analog Bailey RPS/ES with Digital FANP TXS
- Replacement of some analog/solid state input signal components (RCPPM, NI modules)

❖ Modification Scope Review

- R x R - 9 RPS Cabinets, 7 ES Cabinets
- Delete ES Bailey RZ Module interface panels
- Add ES Component Status Panels
- Add ES Channel Trip/Reset Pushbutton Station
- Add, Relocate some ES actuated component operator control interfaces
- Additional Redundancy for RCPM
- NI Recorder replacement (Units 1 & 2)

❖ FMEA

- Reliability Analysis for FANP TXS - April 05
- FMEA for FANP TXS underway
- Final FMEA for modification - December 05

❖ Instrument changes

- No field sensor replacements planned as part of RPS/ES modification
- Revision to instrumentation loop accuracy calculations underway

❖ Mechanical changes

- Verification of acceptable heat loading from new TXS, RCPPM to Control Room and Cable Room underway
- Verification of acceptable heat rise in new TXS cabinetry included in FAT and post-implementation testing
- Verification of SBO Analyses



RPS/ES Mod. (cont.)

❖ Electrical changes

- System cabling requirements evaluation
- Power systems loading analysis
- Human Factors evaluation underway for Control Room changes
- Modification documentation changes underway

❖ Civil changes

- New cabinet seismic mounting design underway
- Cable tray and conduit installation evaluation underway
- Review of seismic qualification of non-TXS equipment

❖ Design criteria

- Electrical separation
- Cable and wiring Separation
- Use of fiber optics for Inter-Channel connections

❖ Functional criteria

- Equipment Specification Revision 1 approved – March 2005
- Functional Requirements Specification approved – March 2005
- Software Requirements Specification approval – August 2005

❖ PRA

- PRA Input information development underway

❖ UFSAR Summary

- UFSAR Changes in Draft (Red Marked) Stage

❖ Design Basis Documentation

- DBD Changes in Draft (Red Marked) Stage



Diverse LPI Actuation

- ❖ Provided diverse LPI actuation design requirements in November 17, 2004 meeting
- ❖ NRC concurred with design requirements
- ❖ Duke approval of FANP proposed design strategy – March 2005
- ❖ Duke to provide additional details by June 2005



Discrepancy between TXS TR and SER

- ❖ In one location, TXS Topical Report could be read as indicating that invariable data is stored in the EEPROM and is subject to cyclical redundancy checks (CRCs)
- ❖ TXS SER essentially repeats this
- ❖ No invariable (Non Changeable Parameter) data is stored in the EEPROMs
- ❖ CRCs are performed on EEPROMs only on use (anytime the data is moved from the EEPROM to RAM or RAM to EEPROM)



Risk-informed D3

- ❖ Duke performed deterministic D3 assessment per BTP HICB-19 guidelines
- ❖ New EPRI guideline provides risk-informed method of performing parts of or all of D3 assessment
- ❖ Duke plans to use EPRI extended deterministic approach to demonstrate adequate defense against digital common cause failures and concurrent LBLOCA based on small change in risk
- ❖ Duke plans to submit by July 2005 and request approval within a year
- ❖ Upon approval, Duke would discontinue design/installation of diverse LPI actuation



NRC Questions

- ❖ Informal NRC questions received March 30, 2005
- ❖ Plan to provide initial response electronically
- ❖ Follow-up with docketed response
- ❖ Discussion of NRC Questions



Closing Remarks

❖ Closing Remarks



Technical Specification Change

- ❖ Combine current and proposed TS requirements by using qualifiers and notes
- ❖ Eliminate 12 hour Channel Checks
- ❖ Extend Channel Functional Test Intervals to 18 months