Duke Energy

Oconee Nuclear Station
RPS/ESPS Upgrade

October 18, 2005

Enclosure 2

Opening Remarks

- Nuclear Safety
- Quality Approach
- Need for Upgrade
- Proven Platform
- Precedents Support this Project
- Duke and Framatome Committed to Resolving NRC Concerns

Project Overview

- **RPS/ESPS Upgrade** – Applying Teleperm XS (TXS)
  - Three Oconee Units, 18 Cabinets Each
- Initial RPS/ESPS Project Briefing Provided to Staff **March 2002**
- Defense-in-Depth & Diversity (D^3) Analysis Submitted **March 2003**
- License Amendment Request Submitted **February 14, 2005**
- **Lead Unit Installation – Fall 2006**

TXS Generic Approval

- Framatome Topical Report Submitted – **September 1998**
- Safety Evaluation Report (SER) Issued – **May 2000**

"…the staff concludes that the design of the TXS system is acceptable for safety-related instrumentation and control (I&C) applications and meets the relevant regulatory requirements."

The SER is the Starting Point for This Project

TXS Protection System Applications

Modernization Projects	
Bohunice V1 – 2 Units	Operating
Paks – 4 Units	Operating
Beznau – 2 Units	Operating
FRM II – 1 Unit	Operating
Tianwan – 2 Units	Commissioning
Bohunice V2 – 2 Units	Implementation
Qinshan I – 1 Unit	Implementation
Loviisa – 2 Units	Design
New Plants	
Olkiluoto 3 – 1 Unit	Design
Ling Ao II – 2 Units	Design
Flamanville 3 – 1 Unit	Design Certification
US EPR – TBD	Design Certification

RPS & ESPS Share Common Processors On 21+ Projects

TXS Operating Experience

FANP Proprietary

Key Issues

- Project Schedule
- System Architecture
- Data Communication Structure
- Defense-in-Depth & Diversity (D^3)

Project Schedule

- First NRC Staff Briefing – March 2002
- First NRC Audit – July 2002
- D^3 Report Submitted – March 2003
- LAR Submitted - February 2005
- RAI's - Ongoing
- Telecons, Audits & Meetings
- Lead Unit Installation – **October 2006**

Schedule is Driven by Reliability & Obsolescence Issues

We Will Provide Whatever Support is Necessary

System Architecture

FANP Proprietary

FANP Proprietary

Defense-in-Depth & Diversity

- Analyze UFSAR Transients & Accidents
  - Demonstrate Acceptability of a SWCMF in RPS & ESPS
- Software Common Mode Failure
  - Beyond Design Basis
  - SECY Letter 93-087
  - SRM Letter dated 7/21/93
    - Best Estimate Analysis
    - Diverse Actuation via Non-Safety
    - Manual Action – Feasible & Reliable (Human Factor RAIs)
- **D^3 Report per BTP-19 Submitted on March 20, 2003**

> The staff's position has been modified in essentially two respects:
>
> First, inasmuch as common mode failures are beyond design-basis events, the analysis of such events should be on a best-estimate basis.
>
> Second, the staff indicates in its discussion of the third part of its position that "The diverse or different function may be performed by a non-safety system if the system is of sufficient quality to perform the necessary function under the associated event conditions." Therefore, this clarification has been added to the fourth part of the staff's position (which refers to a subset of the safety functions referred to in the third part) by removing the safety grade requirement.

Summary

- **Nuclear Safety** – Maintained at All Times, with Improved Reliability
- **Quality Approach** – Meets Applicable IEEE Codes & Standards
- **Need for Upgrade** – Reliability, Obsolescence Issues
- **Proven Platform** – In Use at Keowee & Around the World
- **Precedents Exist** – SSPS, DPPS, PPS
- **Commitment** – We will Support NRC Review
- **NRC Response** – Need NRC Position on Key Issues by **11/1/05**

Discussion

and

Questions & Answers