



Cyber Security Aspects of the Oconee Digital RPS/ES

March 9, 2010



Agenda

- ❖ Purpose
- ❖ Cyber Security Regulatory Guidance
- ❖ Digital RPS/ES Security Features
- ❖ Question and Answers

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Purpose

- ❖ Provide an overview of the Cyber Security Aspects of the Oconee Digital RPS/ES Upgrade Project
- ❖ Presentation detail is limited due to the security sensitive nature of the information
- ❖ Information in Duke's License Amendment Request was labeled sensitive information per 10 CFR 2.390
- ❖ The NRC redacted the sensitive information from the SER

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Cyber Security Regulatory Guidance

- ❖ NEI 04-04 – Cyber Security Program for Power Reactors
 - Issued November 2005
 - Approved by NRC letter dated December 23, 2005
- ❖ 10 CFR 73.54 – Digital computer and communication networks
 - Rulemaking completed late in the Oconee RPS/ES review process
- ❖ Regulatory Guide 5.71 recently approved with guidance for Cyber Security Plan
- ❖ NEI 08-09 – Cyber Security Plan Template is still under review by the NRC

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Cyber Security Regulatory Guidance

- ❖ EPRI TR-102348, Revision 1 Report
 - Security of digital systems to control access and prevent unauthorized changes (Section 5.3.4.5)
 - Endorsed by RIS 2002-22
- ❖ Regulatory Guide 1.152, Revision 2
 - The development process should address potential security vulnerabilities in each phase of software lifecycle.
 - The lifecycle phase-specific security requirements should be commensurate with the risk and magnitude of the harm resulting from unauthorized and inappropriate access, use, disclosure, disruption, or destruction of the digital safety system.
 - NRC Task Working Group (TWG #1) addressing cyber security aspects
 - Primary source of guidance for certification of the Oconee Digital RPS/ES upgrade

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Digital RPS/ES Security Features

- ❖ Review and summarize RPS/ES design features that provide layers of cyber security defense for the system relative to the following areas:
 - Corporate Program
 - System Physical Features
 - System and Support Equipment Software Aspects
 - Licensee O&M Aspects and Features

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Corporate Program

- ❖ Nuclear System Directives (NSDs) developed and revised to address cyber security
 - NSD 804, Cyber Security for Digital Process Systems
 - NSD 807, Cyber Security Incident Response
- ❖ Corporate IT Standards Referenced
 - IT6000 Series, SCADA Cyber Security Policy & Standards
- ❖ Engineering Directives
 - EDM 801, Cyber Security Risk Evaluation

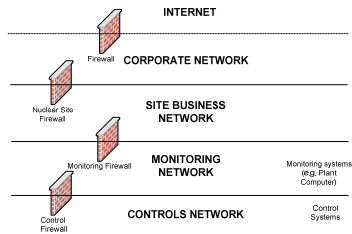


System Physical Features

- ❖ Multiple corporate and site network defensive features
- ❖ Numerous firewalls between Oconee networks and outside world
 - Modification to install data diode between Oconee controls network and outside world is in progress
- ❖ External connections from system are only to the Service Unit and plant computer. Connection to plant computer is via hardware based "Check-Valve"
- ❖ Plant computer connection is via single purpose dedicated gateway computer(s) which provides additional layer of defense



Isolation of Digital Systems from Network



RPS/ES Located Here



System and Support Equipment Software Aspects

- ❖ Software protections have been designed into the Digital RPS/ES
 - Service Unit
 - Gateway
 - Application Specific Interface Software
- ❖ Software features utilized in the design of system provide multiple layers of detection and defense.

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Licensee O&M Aspects and Features

- ❖ Service Unit and RPS/ES system processors located in plant and access is limited to permitted personnel only.
- ❖ RPS/ES cabinets located behind control area adjacent to normal operations pathways with doors locked. Access to cabinets by Work Control and Operations authorization. Cabinet keys required for access.
- ❖ Cabinet doors alarm in the Control Room.
- ❖ Service Unit in plant computer area. Access to area limited and doors are locked.
- ❖ Keyswitch position change required for system change and is alarmed in the Control Room. Keys controlled by Operations.
- ❖ Vital access requirements, work authorization process, cabinet door alarms, and key switch position alarms provide additional layers of detection and defense.

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Questions and Answers

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