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NRC approves upgrades at Oconee Nuclear Station

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SENECA — The Nuclear Regulatory Commission staff has approved a license amendment request from Duke Energy Carolinas to install an up-to-date computer upgrade of major safety-related systems at the Oconee Nuclear Station, located eight miles north of Seneca on Lake Keowee.

The amended Oconee license gives Duke permission to replace 1970s-era analog, solid-state controls for the plant's Reactor Protection System (RPS) and Engineered Safeguard Protection System (ESPS). Duke will install Teleperm XS (TXS) digital computer-based equipment, according to a release from the Nuclear Regulatory Commission.

"Our staff reviewed the proposal to ensure the new systems can respond safely and appropriately to both normal plant conditions and emergency scenarios," said Joseph Gitter, director of the Division of Operating Reactor Licensing in the NRC's Office of Nuclear Reactor Regulation. "The new systems will process and react to information from the plant's existing sensors that monitor the reactor core and critical plant parameters."

The NRC had previously reviewed the TXS basic platform to ensure it met applicable safety regulations and in May 2000 the staff concluded U.S. nuclear power plants could apply to use the system. Duke submitted its Oconee-specific application in January 2008, supplementing its supporting information numerous times through December 2009.

The NRC staff approved the Oconee amendment after confirming the new system's ability to meet both safety requirements and NRC cyber-security regulations that isolate the systems and prevent cyber attacks. The staff paid particular attention to the system's ability to maintain two-way communications between various subsystems and provide diverse control pathways for safety-related commands, as well as the tools used to simulate and validate the system's performance. NRC staff also inspected Duke's procedures for the Oconee-specific TXS design and implementation and observed testing of the actual system at production facilities in Germany.

This marks the first NRC approval for a nuclear power plant's integrated digital RPS and ESPS instrumentation and control system. The agency had previously approved single safety-related digital control applications, such as for the main steam and feed-water isolation system at the Wolf Creek nuclear plant in Kansas.



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