

NEWS

From GEORGIA TECH'S ENGINEERING EXPERIMENT STATION

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TECH INSTALLS COMPUTER SAFETY
MONITORING SYSTEM AT NUCLEAR PLANT

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ATLANTA, GA -- For even greater safety, Georgia Power's nuclear Plant Hatch is getting a computer that can survive an earthquake.

The computer also will do its job at temperatures as hot as 140⁰ F. or as cold as -13⁰ F. And it will continue to work during an electric power failure.

The system designed by Georgia Tech produces easy-to-read video displays. These graphics give control room workers a way to measure the plant's vital signs in a more concise fashion.

After the Three-Mile Island accident in Pennsylvania, the Nuclear Regulatory Commission compiled a study on ways to avoid future nuclear mishaps and one of the recommendations was to rely more on computers in reactor safety checks.

NRC believed that control room operators had to deal "manually" with too much information. The commissioners said that computers could back up the observations of operators and possibly relieve them of basic information gathering and analysis.

In meeting the NRC directive, most American utilities turned for reliability to redundant computers -- that is, systems with duplicate parts which back up each other in case of breakdowns.

Georgia Power Company engaged Georgia Tech to build a different kind of system incorporating military specification (mil-spec) hardware. The computer has less redundancy, but the parts are unsurpassed for their durability and reliability.

"Our Safety Display Parameter System (SPDS) will update reactor conditions at Plant Hatch every second, and it will be considerably more reliable than commercial computers," says Dr. James Mahaffey of Georgia Tech.

It is the only "mil-spec" system of its kind and one of the few earthquake-resistant SPDSs under development in the United States. The computer is capable of generating approximately 80 different video displays of reactor conditions such as water level, main stack radiation, and containment pressure/temperature. In addition, the SPDS will log data histories which run from three hours before to 12 hours after any major event.

Georgia Power control room operators are now learning to use the system on an SPDS training simulator installed at Plant Hatch by Tech engineers last November.

"We'll start installing the actual system in August," says Mahaffey. "We should have completed the project by December."

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