

CASE STUDY

ENERGY

Entergy Operations, Inc., Enlists LRAD at Their Nuclear Power Facilities

Situation

In the post- 9/11 threat environment, the Nuclear Regulatory Commission (NRC) requires all U.S. nuclear power plants to expand and accelerate security measures to meet an amplified and sustained threat level. The NRC has continued to define nuclear power plant safety including communications, drill and training programs, and resource management for all privately held plant operators.

With military-level security 24/7/365, privately owned and managed nuclear sites are protected by state-of-the-art acoustic warning systems and sensitive intrusion detection equipment, as well as ultra-sensitive security cameras and physical patrols all being monitored by ongoing NRC security inspectors.

Today, nuclear power plants feature robust containment structures, progressive safety and security systems, and redundant and independent emergency and power systems that ensure public safety during extreme weather events, hostile acts, and nuclear accidents. Private owner/operators work cooperatively with the NRC, government agencies, state and local officials, and first responders to ensure public safety in the event of an incident.

Entergy Operations, Inc.

Entergy Operations, Inc., meets or exceeds all federally required emergency planning and training procedures at each of their five reactors within four nuclear power plants, including the 10-mile plume and 50-mile ingestion pathways surrounding each plant.

Arkansas Nuclear One (ANO #1), situated in Russellville, AK, provides a dependable and secure source of clean energy to the surrounding community, fulfilling over 50% of the energy requirements of the company's 700,000 commercial and residential customers.

ANO hosts two pressurized water reactors on site commencing commercial operations in December 1974, with Unit 2 following closely, starting its commercial operations in March 1980. Over the span of more than four decades, this facility has been instrumental in supplying affordable electricity to its customers in Arkansas, especially those in the River Valley area along Lake Dardanelle and the Arkansas River.

Problem

With over 1,000 full time personnel and contractors on site at any given time within ANO #1 and #2 and an emergency planning zone that involves four separate counties and extensive waterways, Entergy is responsible for the safe operation of their facilities along with the health and safety of their workers and the surrounding communities. Despite the advanced security threats, most nuclear plants utilize a dated GAI-Tronics communications system.



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Genasys LRAD systems in industrial and commercial communications have been used for many years in isolated clean areas, airports, and outdoor sites such as construction sites and pathways. In fact, many nuclear power plants still use LRAD systems to communicate with staff members and security personnel.



Entergy needed an upgraded solution to replace their GAI-Tronics communications system that would allow them to communicate with large groups instantaneously through loud, highly intelligible speaker systems to both communicate routine information as well as create a strong deterrent in the event of a security breach.

LRAD Systems by Genasys

Genasys Inc. provided a Long Range Acoustic Device (LRAD) system that is capable of providing both a deterrent and warning solution within large area facilities. ANO #1 has 14 Blast Resistant Enclosures (BREs) around the facility perimeter with LRAD-deployed DS-60XL speakers (eight each) on four strategically placed BREs that are capable of covering the entire facility. Each LRAD-equipped BRE has eight horns—six facing out, two facing inward—able to broadcast live voice, alert tones, prerecorded messages, or scheduled informational messages.

The overall system, which includes network connectivity and battery backup, has two control computers utilizing LRAD software systemwide, as well as each BRE having freestanding capabilities that include panic button messaging and a push-to-talk microphone. In the event of a security breach, LRAD speakers have the ability to communicate and warn bad actor(s) up to a mile away, giving security teams time to assemble and react. As proven in other high security installations, LRAD speakers are able to act as a deterrent and stop intrusions, theft, or other nefarious acts through ultra-targeted communications or alerting signals.

Results

The Genasys LRAD system at Entergy's ANO #1 facility was designed to disseminate both regular updates and specific alerts to plant operators, security staff, and visitors. By broadcasting clear warnings to individuals beyond the security boundary, operators are able to maintain a safe separation between the public and the facility. Additional integration could take place for longer range speakers reaching deep within the surrounding emergency planning area including Lake Dardanelle State Park and the Arkansas River.

These deployments highlight the commitment of nuclear power plant operators to safeguard their assets and ensure public safety by quickly spreading essential information to both employees and the public. Genasys offers an extensive array of readiness, response, and analytics software and systems, all built on the fundamental idea of making sure that organizations and public safety agencies are prepared when it counts.

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