

PROTECTING MISSION-CRITICAL INFRASTRUCTURE WITH SPACE AGE ELECTRONICS

In the high-stakes environment of data center construction, you cannot compromise safety due to timeline pressures. When a major data center project faced a critical gap in fire protection coverage that required immediate notification capabilities while the permanent fire alarm system remained a year away from completion, the project team turned to **Space Age Electronics (SAE)**.



*“The capability of network coverage that [**Beacon WES**] can travel across devices was **new and impressive** to us... Whenever other systems go down, you have to reconfigure everything. Whereas with **WES**, if one station drops off, you can replace that and re-enroll it to the system without having to reprogram everything. ”*

CHASE LABENSKI
GENERAL MANAGER, JMEE

Advanced Consulting Solutions Group (ACS Group), JM Electronic Engineering (JMEE), and SAE partnered to temporarily deploy **Beacon WES (Wireless Evacuation System)** along with **Linear Heat Detection (LHD)**. This solution satisfied the strict requirements of the **Authority Having Jurisdiction (AHJ)** and built the client's trust with regulators. The system was deployed in just five days and has remained operational for over a year, proving that flexible, temporary solutions can deliver enterprise-grade reliability.

THE CHALLENGE

Data center construction presents a unique paradox: while the finished facility is a low-occupancy environment, the construction phase is active with high-value equipment and volatile materials. As **Tanner Burke, P.E., Vice President of Engineering at ACS Group** noted, "You look at data centers as a low-occupancy buildings, but during construction, they're active, high-density sites with significant fire risk."

Challenges arose from the configuration of the outdoor utility structures: **24 modular units for back-up power**, each standing as a four-story stack containing a 12,000-gallon diesel fuel tank at grade level, an electrical enclosure, a generator floor above that, and a chiller on top. While the permanent fire alarm system would not be operational for approximately one year, the **AHJ** mandated immediate notification capabilities before the generators could be fueled and tested. They expected a level of fire watch, which could include costly onsite personnel. An additional layer of complexity, the Fire Marshall required that **any temporary alarm system must support precise heat monitoring integration** due to the high-hazard classification of the fuel tanks.

TEMPORARY FIRE PREVENTION SOLUTIONS

- WES3 Connect Base Station (PN: W3-CON-U)
- WES3 Emergency Call Point (PN: W3-ECP-CSS)
- WES3 Interface Unit (PN: W3-INF-I20)
- WES3 Radio Repeater Link Unit (PN: W3-LNK-NNN)
- WES3 Heat Sensor (PN: W3-SEN-HTD)
- WES3 Dust-Resistant Smoke Detector (PN: W3-SEN-SMP)

WHAT IS FIRE WATCH?

On construction sites, while normal fire protection is either not yet implemented or systems are compromised, an AHJ might require a fire watch plan to monitor high-risk activities or areas. Fire watch plans include personnel who are trained in fire prevention and extinguisher use to compensate for the absence of automatic protection. Specific requirements vary by jurisdiction and project scope.



STANDARD SOLUTIONS FELL SHORT

Before engaging **SAE**, the project team evaluated several approaches. Each presented limitations given the project's constraints of distance, environment, and scalability.

A traditional fire alarm panel required a climate-controlled environment. The General Contractor's trailer, the logical location for a control panel, was approximately 200 yards from the fuel storage area. Running hardwire cabling over that distance for a temporary installation was cost-prohibitive and logistically impractical.

JMEE also considered other forms of wireless solutions. The wireless connectivity these systems offered suffered from range limitations and interference issues in the metal structures. Operational flexibility was a concern: "Whenever those other systems go down, you have to reconfigure everything," **Chase Labenski, General Manager of JMEE** explained. "Whereas with **WES**, if one station drops off then you can go replace that and re-enroll it to the system without having to reprogram everything."

THE SAE SOLUTION: BEACON WES + LHD INTEGRATION

On consultation with **ACS Group**, **JMEE** brought **Space Age Electronics** solutions, **Beacon WES** paired with **LHD**, to the Fire Marshall who reviewed and approved the plan as an alternative to a fire watch strategy. **ACS Group** provided fire protection engineering expertise that defined the technical requirements, evaluated the available solutions, and guided the team toward a compliant, comprehensive detection strategy. The team now had a way to address every requirement while maintaining the flexibility needed for an extended construction timeline while remaining within budget.

Beacon WES is a wireless evacuation and early detection system developed for fast and secure notification in the event of a site emergency. **WES** transmits alerts across significant distances, each device has a battery life of approximately 3 years, and it communicates seamlessly with the **REACT** digital platform for offsite monitoring and



automatic emergency response protocols. A critical feature this system has over competitor wireless devices for active sites is that its design allows for rapid deployment without complex configuration.

LHD is a cable-based detection technology that identifies heat anomalies along its entire length. In this application, approximately 125 feet of **LHD cable** was installed above each of the 24 tanks in a zigzag pattern to ensure thorough coverage. The cable connects to **WES** wireless networked interface devices, enabling the system to pinpoint exactly which tank triggered an alarm, exceeding the **AHJ's** requirements.

IMPLEMENTATION AND RESULTS

Given the utility structures were in construction, the installation team needed to avoid permanent modifications. "Since it was all temporary, we didn't really want to drill into anything," **Labenski** explained. "We mounted the equipment to plexiglass and then we strapped the plexiglass to the structure." The **JMEE** team fabricated custom brackets that attached to structural beams, creating a secure mounting solution that protected the integrity of the modular units.

The installation proceeded with remarkable speed. The crew ran the **LHD cable** in two days, with full system deployment in approximately five days total. The system passed a full Fire Marshall inspection and testing on the first attempt.

Intended as a short-term solution, the system has remained operational for over a year at the time of publication. "Still there. We're waiting," **Edward King of JMEE** confirmed when asked about current status. "The General Contractor doesn't have the whole project completed and that's when the Fire Marshall said would be the only time that they can pull out the temporary system."



LHD SOLUTIONS

- 155°F (68°C) Alarm Temperature (PN: SF-TC155)
- 172°F (78°C) Alarm Temperature (PN: SF-TC172)
- 190°F (88°C) Alarm Temperature (PN: SF-TC190)
- 220°F (104°C) Alarm Temperature (PN: SF-TC220)
- 365°F (185°C) Alarm Temperature (PN: SF-TC365N)
- LHD Heat Detection Alarm Point Distance Locator Module (PN: SF-DLM-Z2)

CODE COMPLIANT

When completing any fire alarm project, code compliance is the priority. Whether it be national codes and standards, or local specific requirements by the AHJ on site, Space Age Electronics provides numerous solutions for satisfying both sets of standards.

CONCLUSION: TEMPORARY SPECIALTY DETECTION DELIVERS SAFETY AND COMPLIANCE

This project demonstrates how the right technology partnership can solve complex fire protection challenges in mission-critical construction environments. By combining **SAE's WES** and **LHD** technologies with the fire protection engineering expertise of **ACS Group** and **JMEE**, the project team achieved immediate compliance with **AHJ** requirements while maintaining flexibility for extended commissioning timelines.

For organizations facing similar fire protection needs in mission-critical environments, **Space Age Electronics** offers a proven framework for success. Choose a partner who understands the technology as well as the unique pressures of the construction environment. **SAE** remains committed to lifting partners, ensuring that safety and innovation go hand in hand.

Ready to discuss how **SAE** can support your next project? Contact your regional **Business Development Manager** today to learn more about our specialty detection solutions and how we can help you navigate complex regulatory environments with confidence.

