

C-426

ACE-BESS

# SandBox

## Commentary

### Beach Haven Has a 'Surprise' And Alarming Tie to Ariz. City

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Surprise, Ariz., is a city in Maricopa County just outside Phoenix, population around 143,000, and is the spring training location for both the Kansas City Royals and the Texas Rangers. Along with 24 other valley cities, the Surprise Fire Department is dispatched through the Phoenix Regional Automatic Aid Dispatch System, allowing the closest units to respond regardless of their jurisdiction.

The Arizona Public Service McMicken Battery Energy Storage System (ESS) was a 2 MWh (megawatt/hour) lithium ion battery storage container located on the outskirts of town in the desert near a school and housing in Surprise, Ariz.

A smoke detector issued an alert inside that storage container on the afternoon of April 19, 2019. One minute later the fire suppression system (Novec 1230) within the container activated, totally flooding the storage unit with clean agent suppressant. Satellite electronic monitoring equipment inside the container failed early on, thwarting company personnel monitoring the fire situation inside.

A passerby, who noticed smoke in the area some 45 minutes later, called in the first alarm and Engine 304 was dispatched. The engine arrived on scene to find a low-level white cloud 2 to 3 feet deep, heavier than air and of a gas vapor mixture, emanating from an approximately 40-foot-long container and pushing way out into the desert some 100 yards. Hazardous materials were suspected and personnel involved with the container confirmed lithium ion batteries.

HAZMAT was dispatched and quickly identified the hot zone around the container. Several entries into that zone were made to conduct a 360-degree size-up. Instruments deployed into the white cloud measured dangerously high levels of hydrogen cyanide and carbon monoxide. The team backed out and the situation was closely monitored from a distance. After three hours conditions changed and the white gas vapor mixture stopped flowing out of the container.

Working with senior fire officers, HAZMAT developed a plan with gathered information about ESS units from representatives of the company that owned, designed and maintained the system. When the HAZMAT team reentered the hot zone they found the

presence of hydrogen cyanide and carbon monoxide had dropped to acceptable levels.

In accordance with the incident action plan, an experienced fire captain working alongside a firefighter advanced an inch and

three-quarter fully charged hose line up to the steel container door and opened it. More of that white cloud spilled out of the doorway. A second team of two firefighters, also with an inch and three-quarter attack line, were close by. The captain gathered temperature readings inside the container, calling out an initial reading of 104 degrees and declared "no active fire."

He barely got the words out of his mouth when *bang*, deflagration occurred! The force of the blast blew the fire captain back and through a chain link fence and he landed some 80 feet away in the desert in an area of brush. The steel door was ripped from its hinges and struck an engineer before landing against the fence. The captain's partner, knocked uncon-

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scious, came to and saw fire in the desert and opened his hose line. He was extinguishing his fire captain.

Witnesses described the fireball from the explosion as 75 feet long and 25 feet high. Four firefighters were injured and transported to the hospital where one was listed as critical and three in serious condition. The fire captain spent months recovering in the local hospital burn unit.

The National Fire Protection Association concluded that internal failure in a single lithium ion battery, due to a defect in a single cell, was the likely cause of the fire, thermal runaway and explosion. This system had a total of 10,584 cells organized on 27 racks within the container.

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So what is the connection to Beach Haven? Inside a 40-foot container at 315 Second St. in the heart of downtown Beach Haven, Atlantic City Electric has constructed a BESS (Battery Energy Storage System) containing lithium ion batteries, similar to the ESS container in Surprise, Ariz. A BESS works to store electrical energy during times of low demand and release energy during high demand per an ACE fact sheet. ACE claims the lithium ion batteries are safe; however, like the fire and explosion in Surprise Ariz., the NFPA found that a defect in a single cell was responsible for the disaster.

Should any one of the thousands of cells in the lithium ion batteries within the Beach Haven BESS short circuit, overheat or become damaged, it can progress to thermal runaway. Thermal runaway occurs when a damaged cell overheats, creating a chemical reaction generating its own heat and oxygen and emitting a toxic explosive gas cloud loaded with environmentally toxic substances like nickel, manganese and cobalt.

The batteries in the Surprise, Ariz., ESS and Beach Haven BESS are similar; both are nickel, manganese and cobalt, and both units have Novac fire suppression systems, which were not designed to extinguish lithium ion battery fires. Fires involving these batteries cannot be extinguished by Novac, water or other extinguishing agents and must be allowed to burn out, a process that can take days or weeks. Once the fire is out, there is a danger of reigniting.

Why install a BESS in Beach Haven? ACE said it had difficulty pushing enough power into the south end of Long Beach Island during peak demand and the BESS was to help stabilize the electric grid, but the BESS has only been charged to about 30% and has never, since being built in 2023, gone into service, pushing energy out into the grid.

That, however, is about to change, as ACE gree temperatures, it appears that most of our residents and business owners haven't seen any major electrical outages this summer. The mayor and borough council of Beach Haven have been apprised of the incident in Surprise, Ariz., and have worked tirelessly to have the BESS removed, but ACE refuses.

Is there another alternative to the BESS? According to ACE, there are just two electric feeder lines from Ship Bottom to the south end of the Island, but there are three going north, where there are minimal issues. ACE has suggested fixing the problem could be done by adding a third electric feeder line from Ship Bottom south into Beach Haven. Only then would ACE likely consider removing the BESS, but maybe not.

It's no "surprise" that there are similar dangers associated with the makeup of the ESS unit in Surprise, Ariz., and the BESS in Beach Haven. What would be a "surprise" is to have Atlantic City Electric step up and remove the BESS for the safety of the community and resolve to spend what's necessary to bring a third electric feeder line south into Beach Haven from Ship Bottom.

In addition, we will all be "surprised" if the community does not rise up in protest against this BESS after reading this.

This is a wakeup call. Get involved! Come out to the Beach Haven Borough Council meeting and let your voice be heard. Call your

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electd officials including the state Board of Public Utilities and the Atlantic City Electric CEO. Improvements to the energy system should never come at the expense of public safety. With God's help and with an incredibly loud hue and cry from the people, the Beach Haven BESS will hopefully be removed.

And so we ask, "Is this risk worth any reward?"

*Matt Gideon lives in Long Beach Township and Robert Jacobson and Jim Ciulla both live in Beach Haven. They have over 100 years of firefighting experience, and this column represents their personal opinions and does not represent the position of any fire department.*

*Commentary is a SandPaper guest column. It is open to any subject, and material may take any form. Readers are encouraged to submit pieces for consideration.*