



CASE STUDY

Texas Nuclear Power Plant Conquers Complicated COVID-19 Constraints

In early 2020, amidst shutdowns caused by the COVID-19 pandemic, the Comanche Peak Nuclear Power Plant in Texas was forced into a difficult situation. The plant had a window for maintenance on one of its coolers, and deferring it was not an option. At the same time, COVID-19 restrictions – added to the already lengthy protocol for having an outside expert visit a nuclear plant – meant getting the on-site expertise needed for the upgrade impossible.

Pandemic restrictions add further complications to maintenance work

Comanche Peak has two ~1200 MW reactor units, both commissioned in the early '90s with construction starting in 1974. This puts it solidly in the “boom” era of nuclear energy, during which an average plant was given a maximum lifespan of 20 years. Once that time is up, if the plant is to continue operation, consistent upgrades and diligent maintenance become an important part of extending the plant’s lifespan.

Compared to its brothers and sisters in oil, gas, solar and wind, nuclear power generation must be even

more rigorous about avoiding any outages or even the briefest downtimes in energy production, due to the complex and time-consuming nature of both stopping and starting. Plants are designed to run 24/7 for months on end with extremely rare exceptions, and redundancies are used where applicable to ensure plants can roll in important maintenance during their limited windows for refueling.

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Collaborating through remote communications optimizes the assets and process

Further complicating the matter was the level of precision required for replacing a cooler. Given the length of time that passes between the original creation of these parts and the need to replace them, the original manufacturers are often out of business when

the time comes to replace them. This means finding a new manufacturer and taking extremely precise measurements to ensure the new part will “bolt down” with as little tooling as possible.

The only way to get the job done quickly is with a laser scanner – not a piece of equipment most plants have on hand, nor one that typical employees know how to use. And of course, being unable to have an outsider bring neither the expertise nor the equipment to do the job meant Comanche Peak was effectively stuck.

Enter mCloud Technologies, offering a creative approach made possible through the “Collaborate” remote communications arm of its AssetCare platform, a combination of AI, IoT and the cloud aimed at optimizing both assets and processes. Rather than send an expert to the plant, laser-scanning equipment in hand, mCloud suggested simply shipping the equipment for the job along with a headset through which on-site employees could receive just-in-time training.

“The band-aid solution ended up being a considerable process improvement.”

Comanche was intrigued by the idea and approved it. The result: a convenient parcel containing a laser scanner and an AssetCare-enabled headset was delivered shortly to the plant, at which point an on-site employee wearing the headset was connected directly to Bryan Kemp, mCloud director of projects. Bryan walked the employee through every step of the process, quickly bringing him up to speed on the complex scanner.

Virtual access to the site allows for maintenance in extreme circumstances

The scans were finished with no hassle thanks to AssetCare’s streamlined data sharing and “see-what-I-see” functionality, allowing Bryan to look through the on-site employee’s eyes and give easily understandable guidance.

“This scanning effort was a real eye opener for me. I am usually the one traveling, lugging all the equipment with me and performing the scanning at the nuclear facilities,” said Kemp. “With the AssetCare headset, I was able to be on-site virtually and still have the same control of the scanner and success rate that I see on a typical project. The only requirements are shipping the equipment and a willing nuclear site employee to operate the scanner.”

Though it was originally only intended to address the COVID-19 restrictions, Comanche Peak was so

impressed with both the results and the streamlined results that they’re planning to work with mCloud to do future scanning jobs in a similar way. In many ways, the band-aid solution ended up being a considerable process improvement.

Under normal conditions, the job that mCloud helped Comanche Peak complete in a matter of hours (minus shipping time) would have been a week-long ordeal. An expert visit to a plant of any type is already a matter of driving, flying, booking accommodations, doing the job and then heading back home. The process is particularly arduous at nuclear plants, which require radiation protection training for anyone coming on-site, along with careful monitoring of yearly radiation intake and much more.

There were benefits to the process on mCloud’s side as well – while Bryan would normally have to book a flight, stay at a hotel and take a week or longer for a single task, he can now finish in hours and move on to another job. If multiple shipments were sent out to plants across the nation, he could potentially do a month’s worth of work in a single day, meaning much faster turnaround for every single client.

This project was a major win for Comanche, which was able to get its cooler replaced under extreme circumstances in a stress-free manner that revealed lasting process improvements.

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