Case study

March 2012

Wolf Creek Nuclear Operating Corporation

Trane Rental Services engineers seamless solution for nuclear plant

Burlington, KS

Wolf Creek Nuclear Operating Corporation has been safely providing clean energy to the citizens of Kansas and Missouri since 1985. The plant generates about 1,200 megawatt electrical, which is enough energy for approximately 800,000 homes. Wolf Creek is located in Coffey County, KS; 55 miles south of Topeka, 90 miles southwest of Kansas City and 120 miles north of Wichita. Operating the first and only nuclear power plant in Kansas, Wolf Creek is a subsidiary of three owners: Kansas City Power & Light (47 percent), Kansas Gas & Electric (47 percent), and Kansas Electric Power Cooperative (6 percent).

Challenge

The Wolf Creek Nuclear Power Plant needed to engineer a solution to provide cooling for a small portion of a cooling water system for potentially radioactive components. Due to the nature of the design and the need for an immediate solution, purchasing a new system and/or redesigning the existing system was out of the question.

Solution

After consulting with other plants in surrounding states, Wolf Creek engineers began exploring rental options to take care of their immediate needs. "We asked one of our 'sister-plants' in Missouri who they have worked with," said Travis Rohlfing, system engineer with Wolf Creek. "They recommended that we call Trane."

A reliable replacement

The Trane Rental Services team suggested an 80-ton, air-cooled rental chiller (model RTAA) that could be secured for a two-year period. The rotary chiller is compact and designed to be reliable and efficient. A generator was also recommended to ensure the chiller operated safely and efficiently, regardless of Wolf Creek's power supply.

Wolf Creek's robust design can withstand a powerful earthquake or the winds of an F5 tornado.

Safety first

As with everything at Wolf Creek, safety was the primary component of the design. "The safety of the people in our local communities is our primary responsibility, and our commitment and focus is always on putting safety first," said Rohlfing. Trane and Wolf Creek engineers discussed their options and the importance of having equipment available within a required timeframe to allow them to maintain normal daily operations.

A seamless design

Engineering and executing the new design was challenging on many levels. First, the rental equipment had to fit seamlessly with the existing cooling system piping; then the line had to be shut down in order to modify the piping to install the connection flanges. Most importantly, timing was eminent; the installation had to be done immediately.

Taking precautions

Extra precautions were taken in dealing with the potentially radioactive water. Prior to entering the facility, Trane's service technician completed an extensive safety training program to get up to speed on Wolf Creek's safety policies. Power lines were trenched in order to locate the generator in an area that was easy to fuel. All of the Trane equipment was housed in special structures to ensure complete containment if anything were to leak. Making sure the job was done right, in accordance with the stringent safety procedures, was of critical importance.

Results

The Trane Rental Services team engineered and initiated a unique solution to answer Wolf Creek's immediate needs, all within the required timeframe. The rental chiller and generator ensure reliable, safe cooling of a portion of the nuclear plant's cooling water system.

"We selected Trane for their solution. It allowed us to provide cooling to our equipment so that we could continue normal daily operations without challenging the safety of our system," said Rohlfing.

The rental equipment had to fit seamlessly with the existing cooling system piping.

Systems and services

- Reliable Trane 80-ton RTAA, air-cooled rotary rental chiller provides safe, efficient cooling.
- Generator ensures continuous chiller operation regardless of power supply.
- Unique design fits seemlessly with existing cooling system piping.
- Special structures and extra precautions taken to ensure safety.

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