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MATT MILLER/THE WORLD-HERALD

The Fort Calhoun Nuclear Station from the air Thursday. OPPD was putting the finishing touches on federally ordered flood-defense improvements before flooding began.

FORT CALHOUN, Neb. — Despite the stunning sight of the Fort Calhoun nuclear reactor surrounded by water and the weeks of flooding that lie ahead, the plant is in a safe cold shutdown and can remain so indefinitely, the reactor's owners and federal regulators say.

“We think they've taken adequate steps to protect the plant and to assure continued safety,” Victor Dricks, spokesman for the Nuclear Regulatory Commission, said Thursday.

Tim Burke, vice president at Omaha Public Power District, said the plant's flood barriers are being built to a level that will protect against rain and the release of record amounts of water from upstream dams on the Missouri River.

“We don't see any concerns around the Fort Calhoun Nuclear Station,” Burke said at a briefing in Omaha Mayor Jim Suttle's office.

The nuclear plant, 20 miles north of Omaha, was shut down April 9 for refueling. It has not been restarted because of the imminent flooding.

Cooper Nuclear Station, which is about 70 miles south of Omaha near Brownville, Neb., continues to operate even as it makes similar flood protections. Cooper is owned by Nebraska Public Power District. The river would have to rise about 6 feet higher for the plant to go into a cold shutdown.

Time has been on Fort Calhoun's side, said David Lochbaum, director of nuclear safety at the Union of Concerned Scientists. The group is a leading watchdog of the nuclear industry.

Lochbaum is among the handful of outside experts whom Congress taps for perspective on nuclear problems, including the crisis caused by the March earthquake and tsunami in Japan.

At the Fukushima Daiichi plant, operators had less than an hour to react to the quake before the tsunami hit, Lochbaum said. Fort Calhoun has had weeks to ready itself for flooding.

“That's not enough time to relocate a nuclear plant to higher ground or jack it up on stilts,” he said, “but it is plenty of time to check to ensure that watertight doors are intact, backup power supplies are available and functional, fuel oil tanks are topped off, etc.”

That is what OPPD has been doing.

However, other problems at the plant and some of the flood precautions themselves have unnerved people:

>>A fire at the outset of flooding temporarily disrupted power to the spent fuel pool.



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most tightly monitored plants because of problems it had before the flooding.

Dricks said the NRC has taken the unusual step of sending more inspectors and a branch chief to Fort Calhoun. A branch chief is a top regional regulator. In this case, it's the individual responsible for overseeing Fort Calhoun inspections and compliance.

Also, OPPD is bringing in additional boats, food and water for employees, which is not a cause for alarm, Dricks said.

It's called prudence.

Perhaps it's just as well that Fort Calhoun got into trouble last year with federal regulators over flood preparedness. During routine inspections in June 2010, the NRC concluded that deteriorating conditions during catastrophic flooding could make sandbagging near the river difficult.

Regulators required OPPD to improve flood defenses and signaled in April that those improvements were taking the plant in the right direction.

At that time, the plant was putting the finishing touches on the improvements, and utility officials were hopeful that this would be the month that the federal agency signed off on Fort Calhoun's flood upgrades.

Instead, the nuclear plant is in an all-out battle with the river.

In May, OPPD learned from the Army Corps of Engineers of the imminent flooding.

Since then, the utility has taken a number of steps that Dricks said have given federal regulators confidence in OPPD's ability to endure what will be a summer of flooding:

>>Installing an approximately 8-foot-tall, 16-foot-wide water-filled tubular rubber dam. The dam encircles the reactor building, like a black snake, and holds the floodwaters at bay.

>>Building an earthen berm around the switchyard, and other berms or sandbag walls around other electrical structures. Protecting the structures allows continued electrical power to the plant.

>>Trucking in two more fuel oil tanks that will supplement those on site and provide a total of four weeks' fuel for the backup diesel generators. The plant is developing plans for additional supplies of fuel.

In addition, the plant's backup batteries can provide power for eight hours, Dricks said. The plant's daily source of electricity is brought in from outside via transmission lines. The plant has six power lines coming into the plant, and any one of those is sufficient to run it.

>>Ordering six additional boats.

The plant began sandbagging on the weekend of May 21, according to the utility.

On June 6, the plant issued to federal regulators a "Notification of Unusual Event" because the river was projected to reach a flood level that would prevent the plant from operating. This type of notification is the least serious of four emergency classifications.

On June 7, a fire occurred that caused an interruption of power to the spent fuel pool. As a result, the plant was unable to continue active cooling of that pool. According to OPPD, power was out 90 minutes.

Within minutes after the start of the fire, the utility issued an "Alert," the second-lowest of the four levels of emergencies.

Both the NRC and OPPD agree that the disruption of power was not a threat to public safety. Calculations indicate that the plant's spent fuel pool could have gone 83 hours without power before the water in it would have begun boiling, Dricks said.

Lochbaum said that once again, time was on OPPD's side. The time cushion offered the utility the "luxury" of choosing a solution to the problems created by the fire, Lochbaum said.

Elizabeth Ishan Cory, a spokeswoman for the Federal Aviation Administration, said the flight restrictions at Fort Calhoun are intended to keep curiosity seekers out of the immediate vicinity. Planes can still fly near the plant if they have flight plans and are in contact with air traffic controllers. Smaller aircraft are restricted in how close they can get to the plant.

Otherwise, there's a risk of midair collisions that could jeopardize operations on the ground.



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to keep the people on the ground safe, too," Cory said.

Port Calhoun had yet to reflect the full release of water from Gavins Point Dam.

at the plant will most likely rise about 6 inches higher than it has been for much of this week, he said. Should higher-than-normal rainfall occur this summer, the river might rise 2.5 feet higher than it currently is, he said.

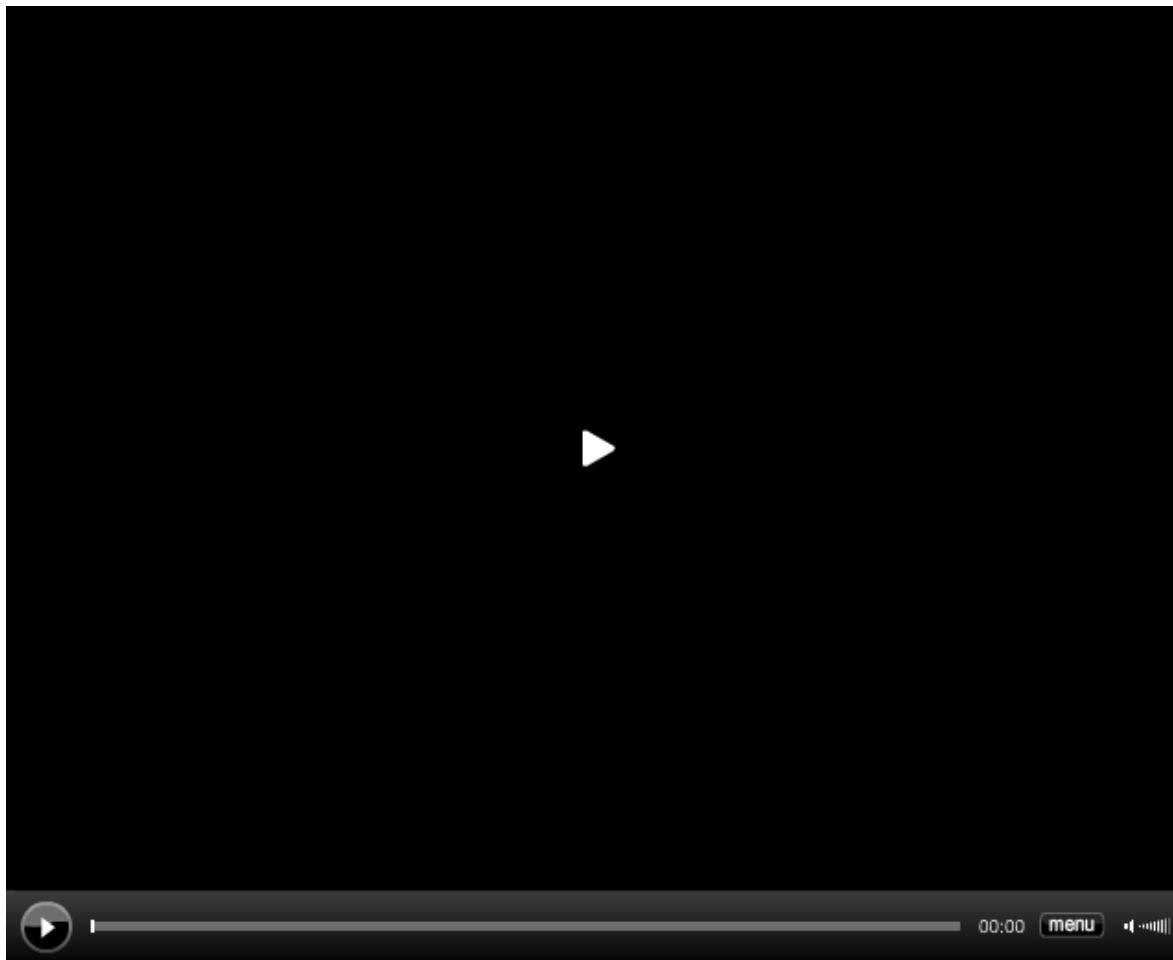
River levels and other flood measurements at the plant are made in terms of feet above sea level.

Earlier this week, the river stood at 1,005.6 feet elevation, Remus said, and has been mostly unchanged since then. The corps' projections place the river crest this summer, barring extraordinary rains, between roughly 1,006 and 1,008 feet.


Burke said OPPD's flood barriers would protect the plant to 1,010 to 1,012 feet elevation. The reactor itself is in a watertight container and the spent fuel pool is at 1,038.5 feet elevation.

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