

Palisades nuclear plant in Mich. may be named 1 of nation's 5 worst

By Tina Lam, *Detroit Free Press*, Jan. 15, 2012, page A.1

The Palisades nuclear power plant, which sits on the shores of Lake Michigan, could soon be downgraded by the Nuclear Regulatory Commission to a status making it among the nation's five worst-performing nuclear plants after a year of accidents, unexpected shutdowns and safety violations.

The regional head of the NRC said last week that if performance does not improve, the agency would not hesitate to shut down the plant. Palisades is one of the nation's 10 oldest nuclear plants, and after hitting its 40-year life-span in 2011, its license was extended until 2031.

"Quite frankly, we find your performance troubling, and it declined in 2011," regional administration Cynthia Pederson said in a rare public rebuke of the plant owned by Entergy Nuclear Operations.

Entergy acknowledged mistakes. One accident in September led to a loss of electricity at the plant that tripped its reactor and caused equipment to malfunction.

The accident "could have killed somebody," the plant's manager said last week in a shaken voice.

That was one of at least five unexpected shutdowns of the plant in the past year after valves malfunctioned, seals leaked or pumps failed. The NRC spent 1,000 extra hours last year inspecting the plant.

Antinuclear activists and watchdogs say there are even deeper problems the NRC has not addressed, including Entergy not having replaced major components that former owner Consumers Energy said needed to be replaced when it sold the plant in 2006. Although their age makes those components vulnerable, the NRC says the components still meet safety standards.

"If all these failings and accidents line up in just the right way, we could have a very bad day at Palisades," said Kevin Kamps, a Kalamazoo native and staff member at Beyond Nuclear near Washington, D.C.

Palisades accident investigated

It began with a light bulb.

Trying to fix a burned-out light bulb on an indicator button led to a serious incident that left the Palisades nuclear plant on Lake Michigan without half its electrical power on Sept. 25, 2011. A piece of equipment slipped while a worker was troubleshooting on a live electrical panel, causing an arc of electricity and a loss of half the indicators in the room that controls the reactor. Signals went haywire for a while. The plant shut down.

A plant spokesman notified local newspapers of the shutdown as required, but assured the public there were no safety risks.

Behind the scenes, the reaction was not so mild.

"This was an avoidable event," plant manager David Hamilton said last week at a daylong Nuclear Regulatory Commission public meeting on the incident, where Palisades managers were questioned at length about what happened.

In taking his share of the blame, Hamilton said, "I apologize if I get emotional, but I could have killed somebody that weekend."

Anthony Vitale, vice president of operations for Entergy at Palisades, said he was thankful that operators were properly trained and had been able to respond to prevent the accident from getting any worse. "I saw the look on the shift manager's face," he said. "I can tell you, I will never let that happen again."

In the meeting last week in Chicago, regulators said it wasn't even so much what did happen, as what could have.

The NRC has preliminarily flagged the incident as "yellow," one that has substantial safety significance.

Though they took the blame and promised fixes, Entergy officials said the problems stemmed in part from employees' failures to follow Entergy procedures used at its other plants. Entergy bought the plant in 2007 from Consumers Energy, which had operated it for decades.

"You've run it for four years," said Cynthia Pederson, the NRC administrator for Region III, which oversees nuclear plants in the Midwest. "Frankly, we're tired of that excuse."

Vitale and Hamilton admitted that the company's safety culture was lax, meaning some people were not as risk-conscious as they should be.

"We understand we need improvements in our people and our plant," Vitale said. The company has brought in a consultant to help it ramp up safety.

The incident was one of five unexpected reactor trips, three serious incidents and a violation in the last year that have landed the plant in hot water.

"We're concerned with the accidents and violations we've identified," Pederson told the Free Press on Thursday.

She listed Palisades' problems: organizational failures, a plan for change that came only after performance had declined steeply, poor instructions for work that needed to be done, failing to follow procedures, poor supervision and oversight, poor maintenance and multiple events caused by human errors or equipment failures. "The list could go on," she said.

"What we want to see is a change in performance," Pederson said. The plant already had more than 1,000 hours of extra NRC inspections last year and will undergo more this year, she said. A plant that is performing well gets about 2,500 hours yearly. The NRC wants to make sure the company finds and fixes the root causes of each problem.

Color-coded dangers

Each year, most of the nation's 104 reactors have minor problems that are considered of very low safety significance. Those plants are in the "green" category, which allows baseline inspections by resident NRC inspectors, who are on-site daily. Michigan's two other nuclear plants -- Fermi 2 and D.C. Cook -- are in the green category.

When more serious problems are discovered, the NRC puts plants into downgraded categories, starting with white, then yellow and then red, depending on seriousness. Without improvement, a red plant is shut down until problems are fixed.

The further the plant is downgraded, the more inspections it requires.

Earlier this month, the NRC determined that a pump failure at Palisades last May was a white finding, of low to moderate significance, and moved the plant from the green category to white. A dozen other U.S. plants are in that same category. That problem was caused by workers who didn't follow the right maintenance procedures, the NRC said.

Last week's hearing covered two other preliminary findings, one white and one yellow. If one or both are upheld, the plant could be downgraded to yellow.

Only two other plants nationwide are in that category now. A third plant is in the red, or worst, category, and a fourth is completely shut down after flood damage last year.

The second white finding, still preliminary, was that one of three critical water pumps used to cool the plant failed in May 2011 because of corrosion of a coupling; the same thing had happened in 2009 but the company had not determined the correct cause. The preliminary yellow finding was the electrical failure.

The NRC also issued a legal violation against Palisades earlier this month, separate from its performance reviews, after a supervisor walked off in anger from his job in the

plant's control room in October 2010, without seeking permission to leave or asking anyone to take over his duties. The control room is the most sensitive area of the plant, overseeing the reactor's operation. Pederson said the company has promised corrective action and could yet be fined in that case.

Palisades already spent part of 2008 and most of 2009 in the white category because of problems at the plant.

David Lochbaum, director of nuclear safety for the Union of Concerned Scientists and a nuclear engineer, said the NRC's system of colored findings and increased inspections when plants are downgraded is a vast improvement over the way the agency used to do business.

The NRC used to assess performance every 18 months to two years. "Problems had to grow to epidemic proportions before the old system flagged them," he said, and the agency had no means to compel fixes. Since 2000, when the system changed to assessing 25 performance criteria every three months, it's quicker to detect and solve issues.

"It doesn't rely on words, promises or excuses," he said. As plants are downgraded, more NRC inspectors show up. If a plant has deeper problems, the inspectors will find them. A plant can't be upgraded until the NRC does a major inspection that finds no major problems.

"It's about objective evidence," Lochbaum said.

Equipment issues

Besides human failures, the plant has underlying equipment issues, some of them because of its age, antinuclear activists say. Cables break, aging pipes burst, reactor vessels deteriorate and corrosion hits equipment.

Palisades was completed in 1967 but didn't open until 1971. It's among the nation's 10 oldest plants. Its life-span was planned as 40 years, like other reactors. The NRC granted it a 20-year extension to 2031 four years ago. About 70 other plants have won similar extensions.

A 2011 Associated Press investigation found that the NRC often worked closely with plant operators to keep aging reactors within safety standards by weakening the standards.

Kevin Kamps, a watchdog with Beyond Nuclear, a Maryland nonprofit that opposes nuclear plants, said that has happened with some components at Palisades. In 2006, when Consumers Energy was seeking permission to sell Palisades to Entergy, it did a presentation to the Michigan Public Service Commission showing what fixes needed to be made and arguing that Entergy would be in a good position to afford them.

Many of those fixes still haven't been made. The reactor vessel at Palisades is possibly the most brittle in the country, meaning radiation bombarding the vessel has weakened the metal, according to NRC studies done on the problem at plants around the country to try to determine fixes for it, Lochbaum said.

Pederson acknowledged that problem Thursday but said that the vessel still meets acceptable safety standards.

Another problem, a corroded reactor lid that Consumers said in 2006 needed replacing, also falls within acceptable safety standards for now, she said.

Kamps said opponents of the plant wanted it shut down instead of winning a 20-year extension. "It's an accident waiting to happen," he said.

Pederson disagreed and said the plant is not dangerous to its neighbors.

"If it were, I'd shut it down immediately," she said.