St. Lucie's Safety Rating Among Nation's Worst

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Continuing problems with critical safety systems at the St. Lucie nuclear power plant has resulted in the Nuclear Regulatory Commission downgrading the site's status to among the worst run facilities in the nation.

The NRC dropped the plant's designation in its color coded rating system from green – which is given to the best run plants – to yellow, the second lowest designation, asserting that the problems at the plant "have substantial safety significance."

At present, none of the nation's 104 operating nuclear reactors have a "red" rating, the lowest safety classification, and only the Browns Ferry plant operated by the Tennessee Valley Authority currently shares the "yellow" rating.

The downgrade means the plant will be subject to the regulatory agency's highest level of scrutiny, with frequent inspections by special teams supplementing the daily reviews by on site, resident inspectors. Florida Power and Light, which operates the plant, has until May 19 to appeal the NRC's findings.

The yellow finding was the result of two, related, major issues noted by inspectors which are violations of NRC regulations and the plant's operating license. Nuclear power systems have several interconnected, pressurized systems carrying cooling water, steam, and backup fluid for the reactor, its service components, and the actual power generator. In this case, the main violation stemmed from a leak or leaks within the closed system providing cooling water serving the pumps circulating cooling fluid within the reactor itself. If this pump system failed, the pumps could overheat and fail, leading to a loss of coolant within the reactor and a meltdown of its 100 tons of fuel. That scenario – a loss of coolant accident – is the worst that can happen in a nuclear operation.

The NRC sent a notice to FP&L and the nation's other nuclear power plant operators in 2008 to inspect for possible gas accumulations in the emergency corps cooling systems. The problem at St. Lucie came to light in February when an NRC inspection team was following up on that two year old order and checking the condition of plant's cooling system.

"The component cooling system is fairly large," explained NRC spokesman Roger Hannah, "with hundreds of thousands of gallons of water. The problem was in the seals for the pump system. They got air into the system, but once they identified the problem, they didn't correct it."

Initially, said Hannah, staff at St. Lucie did not understand why the performance of the cooling system was deteriorating and a special inspection team was sent from NRC regional offices to examine the situation. "They knew there was an air intrusion, but they were unable to identify the source of the leakage," said Hannah. "We

were able to identify that it came from seals in an air compressor."

But after being informed that the deterioration stemmed from leaks in the air seals, St. Lucie staff did not immediately fix the problem, which was a violation of their operating license. It is for this reason that the plant was cited for two major violations: failing to diagnose the problem, and then failing to promptly fix it. The ability to find the source of problems, called a root cause analysis, is a major requirement of the NRC for plant operators to run nuclear systems.

"This issue illustrates the importance of promptly identifying and correcting problems," said NRC Regional Administrator Luis Reyes. "While there were no actual safety consequences, air in that system could have lessened its capacity to cool plant safety equipment."