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NRC Finalizes 'Yellow,' 'White' Inspection Findings for Oyster Creek Nuclear Power Plant; Level of Oversight to be Increased

The Nuclear Regulatory Commission will increase its level of oversight at the Oyster Creek nuclear power plant following the finalization of one "yellow" and one "white" inspection finding for the Lacey Township (Ocean County), N.J., facility. A "yellow" classification indicates substantial safety significance while a "white" connotes low to moderate safety significance.

The "yellow" finding involves design aspects of electromatic relief valves, or EMRVs, for the Exelon-owned and -operated plant. The "white" finding pertains to the maintenance of an emergency diesel generator at the facility.

"These enforcement actions underscore the need for plant owners to be vigilant when it comes to maintaining essential safety equipment," NRC Region I Administrator Dan Dorman said. "In the case of these issues, two components that can play an important role during a reactor shutdown either experienced or may have experienced material failures that could have prevented them from performing their functions when needed. The company has since corrected the equipment problems. The NRC will now carry out additional inspections to ensure the underlying issues have been fully addressed."

With respect to the "yellow" finding, the EMRVs would be used to depressurize the reactor during a pipe break to allow coolant to be injected into the reactor core. This is necessary to keep the nuclear fuel in the reactor covered and cooled as the shutdown progresses.

During refurbishment work in June 2014 on two EMRVs removed from the plant in 2012, the company found an alignment problem with the valve's actuator. When the valves were tested, they did not open.

Once the issue was identified, Exelon immediately tested five of its then-installed EMRVs. All five actuated successfully. Further, the company installed redesigned actuators for the valves during a refueling and maintenance outage at the plant in October 2014.

Even though the violation involving the EMRVs has been classified as "yellow," the NRC has determined it represents an old design issue. That is, the issue stems from an inspection finding

involving a past design-related problem and does not reflect a current performance deficiency associated with existing programs, policies or procedures used by the company.

As a result, the finding will not lead to Oyster Creek moving into the Degraded Cornerstone Column of the NRC's Action Matrix. However, the NRC will carry out a team inspection that will review Exelon's root-cause evaluation and corrective actions for the issue.

On the issue involving one of the plant's emergency diesel generators, the back-up power source may not have been available to operate because of the degradation of its cooling fan drive shaft.

Oyster Creek, like other nuclear power plants, transmits power to the grid but also receives power from the grid for the operation of safety systems. When that off-site power is unavailable, the plant's emergency diesel generators activate to provide power to key safety systems.

On July 28, 2014, during a bi-weekly test of one of the plant's emergency diesel generators, alarms involving the generator were received. Following the generator's shutdown, Oyster Creek personnel discovered the belt-driven cooling fan drive shaft had sheared into two pieces, resulting in the generator becoming inoperable. The fan keeps the generator from overheating when operating.

Plant personnel replaced the fan shaft and performed a failure analysis on the damaged shaft. It was determined that fatigue was the cause of the shaft's failure.

NRC inspectors learned that in May 2005, Exelon changed the method for tensioning the generator's cooling fan belt but did not adequately verify the acceptance criteria for the change. The company did not detect that the change left the shaft subject to fatigue and, as a result, the failure occurred on July 28, 2014. Further, the period of inoperability for the generator exceeded its allowable outage time in violation of the plant's technical specifications. Unlike the EMRV design issue, the tensioning issue was identified by the NRC.

Exelon took immediate steps to address the issue, including performing a failure analysis on the broken shaft, examining the cooling fan drive shaft for the plant's other emergency diesel generator and correcting the tensioning method.

For both issues, the NRC offered Exelon an opportunity to take part in a regulatory conference, to provide additional information in writing or to accept the findings as characterized. The company provided written responses on March 13 for each issue. The company disagreed with some aspects of the NRC's analysis of the EMRV issue, concluding that the issue was less significant than characterized by the agency. The NRC considered the points raised by Exelon and concluded that the EMRV issue was appropriately characterized as "yellow." For the EDG "white" finding, the company accepted the finding and its significance determination.

The NRC will perform team inspections in response to both inspection findings once Exelon notifies the agency of its readiness for the reviews.

The reports regarding the enforcement actions can be found in the NRC's electronic documents system, ADAMS.