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RA16-049

July 22, 2016

U.S. Nuclear Regulatory Commission
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Washington, DC 20555-0001

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Response to NRC Component Design Bases Inspection, Inspection Report
05000373/2016007; 05000374/2016007

References: 1. Letter from M. T. Jeffers (U.S. Nuclear Regulatory Commission) to B. C. Hanson (Exelon Generation Company, LLC), "LaSalle County Station, Units 1 and 2, NRC Component Design Bases Inspection, Inspection Report 05000373/2016007; 05000374/2016007," dated June 22, 2016

In Reference 1, the U.S. Nuclear Regulatory Commission (NRC) identified four findings of very-low safety significance (green) which involved violations of NRC requirements during the Component Design Bases Inspection (CDBI) at LaSalle County Station (LSCS) which concluded on May 13, 2016. One of the identified green findings and associated Non-Cited Violations (NCV) is of the LSCS Operating License for the failure to ensure that procedures were in effect to implement the alternate shutdown capability.

The attachment to this letter provides the Exelon Generation Company, LLC (EGC) response and basis for the denial of the NCV related to alternate shutdown capability issued for LSCS in Reference 1 (NCV 05000373/2016007-04; 05000374/2016007-04, Alternate Shutdown Procedures Failed to Ensure RCIC MOVs Supply Breakers Were Closed).

There are no regulatory commitments made within this letter. Should you have any questions concerning this letter, please contact Mr. Guy V. Ford, Regulatory Assurance Manager, at (815) 415-2800.

July 22, 2016
U.S. Nuclear Regulatory Commission
Page 2 of 2

Respectfully,

A handwritten signature in black ink, appearing to read "William J. Trafton". The signature is fluid and cursive, with a prominent initial "W" and a long, sweeping tail.

William J. Trafton
Site Vice President
LaSalle County Station

Attachment: Basis for Denial of NCV 05000373/2016007-04; 05000374/2016007-04,
Alternate Shutdown Procedures Failed to Ensure RCIC MOVs Supply Breakers
Were Closed

cc: NRC Regional Administrator, NRC Region III
NRC Director, Office of Enforcement
NRC Senior Resident Inspector - LaSalle County Station

ATTACHMENT

Basis for Denial of NCV 05000373/2016007-04; 05000374/2016007-04, Alternate Shutdown Procedures Failed to Ensure RCIC MOVs Supply Breakers Were Closed

Page 1 of 3

EGC Response

As stated in the Inspection Report (Reference 1), the Finding / NCV 05000373(374)/2016007-04 was issued based on the NRC's conclusion that the abnormal operating procedures (AOPs) established to respond to a main control room fire did not include instructions for verifying the supply breakers for the valves 1(2)E51-F019 and F059 were closed, thereby ensuring they could be operated from the remote shutdown panel. The NRC's position is that EGC's analysis did not postulate specific fire-induced failures that could result in tripping the valve's power supply breakers prior to tripping the valve's control power fuses.

EGC has reviewed the details of the Inspection Report, and disagrees with two of the NRC's key positions that form the basis for the Finding / NCV. Specifically, the NRC is postulating fire-induced circuit failures involving shorts that are outside the published and accepted standards, and the valves identified by the NRC in this Finding / NCV do not fall under the trip reset requirements since their function is not necessary to support the system's fire safe shutdown capability. Therefore, it is EGC's position that the NRC has inappropriately evaluated the current EGC analysis and approach as a performance deficiency and this Finding / NCV should be rescinded. The details supporting this conclusion are provided below.

Fire-induced Circuit Failures

The finding / NCV is based on the NRC inspectors postulating fire-induced circuit failures that are outside the scope of the current requirements or any NRC endorsed industry guidance applicable to LaSalle Station. Specifically, the inspectors identified short circuit cable lengths shorter than those analyzed in calculation L-004017 (250 VDC Breaker Fuse Coordination For RCIC) by postulating shorts between cables associated with the valves in question (i.e., 1(2)E51-F019 or F059) and another valve from the same power source, or shorts between cables associated with these valves and the ground, and cables associated with other valves and the ground that would end up with a short circuit via the ground.

The LaSalle analysis for the 250 Vdc Reactor Core Isolation Cooling (RCIC) system breaker fuse coordination analysis L-004017 applied industry-accepted engineering principles to demonstrate coordination exist over the entire range of possible fault currents that were physically possible for each circuit under consideration, consistent with LaSalle Fire Protection Report, Section H.42, which commits LaSalle to apply coordination to "these circuits" and does not require the involvement of other external circuits. The NRC position on the methodology used in calculation L-004017 is based on NEI 00-01, "Guidance for Post-Fire Safe Shutdown Circuit Analysis," which LaSalle is not currently committed. Additionally, NEI 00-01 language on ground-fault equivalent shorts has undergone numerous revisions, and NRC has not yet endorsed all aspects of this guidance, nor has NEI 00-01 clearly articulated guidance that would clearly apply to breaker coordination circuit length analyses such as the one in question at LaSalle.

In regards with the concern of shorter circuit lengths used in calculation L-004017 for fire in the main control room (MCR), it is observed that the maximum RCIC circuit lengths routed up to the RCIC control panel in the MCR is less than 100 ft. A short or ground in the RCIC circuit in the

ATTACHMENT

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Page 2 of 3

MCR fire will reduce the circuit length by no more than this amount, which will have negligible effect on the evaluation performed in calculation L-004017.

As described in NRC IMC 0612, Appendix B "Issue Screening" in order for an issue of concern to be a performance deficiency, the issue must result from a failure to meet a requirement or standard applicable to LaSalle Station, and the cause was reasonably within the licensee's ability to foresee. Neither during the inspection, nor in the inspection report, has the NRC provided reference to any formal NRC guidance or endorsed industry document that supports their position that these additional shorts need to be postulated. Therefore, the NRC has not clearly described their basis for the performance deficiency.

RCIC Requirements in the AOPs

The Finding / NCV was also based, in part, on the NRC conclusion that AOPs LOA-FX-101 and LOA-FX-201 did not contain alternate instructions to operate valves 1(2)E51-F019 or F059; and the inability to operate these valves would not be within the bounds of the AOPs for a safe shutdown with a fire in the main control room.

As described below, EGC has determined that valves 1(2)E51-F019 and F059 do not impact the RCIC injection into the reactor and are not essential for the RCIC system to perform this credited fire safe shutdown function. The LaSalle fire protection report credits RCIC injection to the RPV to support fire safe shutdown. Therefore, as described in the requirements above, it is not necessary to provide alternate instructions for these valves in the LOA procedures. Consistent with GL 86-10 position 5.2.1, it is acceptable for safe shutdown procedures to provide the operator guidance from "full system availability to minimum shutdown capability." The LOA procedures do provide some instructions to operate the 1(2)E51-F019 and F059 valves, but these are options for the operators that may be beneficial/desirable if available, but don't represent the only way to operate the RCIC system, and their lack of function would not prevent RCIC injection into the RPV.

RCIC Full Flow Test Downstream Valve, 1(2)E51-F059, is a normally closed valve and is not used for RCIC injection into the Reactor Pressure Vessel (RPV). It allows testing of the RCIC pump under design flow conditions in conjunction with normally closed 1(2)E51-F022 throttle valve. In this case the water is pumped from the Cycled CST and returned to the Cycled CST. This line up is also used in pressure control mode, which is generally used when the reactor is isolated from the main condenser and RCIC injection into the RPV is not required. A spurious opening of 1(2)E51-F059 valve will not divert water from the RCIC injection path because it is in series with the normally closed 1(2)E51-F022 valve. Procedures LOA-FX-101 and LOA-FX-201 provide the option of rejecting excess RCIC flow to the Cycled CST. This supplements the operator's primary means of controlling RCIC flow via the flow controller. RCIC capacity closely matches reactor decay heat, therefore this mode of RCIC operation is not judged to be necessary, although it is desirable and may be used several hours into the event if it were available. The loss of this means of flow control would not prevent safe shutdown using RCIC.

RCIC Min Flow Valve, 1(2)E51-F019, is also a normally closed valve, which ensures that sufficient RCIC pump flow is present for cooling purposes when no discharge path is available. It is open when the pump flow is less than 60 gpm and the discharge pressure is greater than 125 psi and the valve closes when the flow is greater than 90 gpm. Therefore, it is not required

ATTACHMENT

Basis for Denial of NCV 05000373/2016007-04; 05000374/2016007-04, Alternate Shutdown Procedures Failed to Ensure RCIC MOVs Supply Breakers Were Closed

Page 3 of 3

for the RCIC injection to RPV. It is important to note that the min flow valves are normally closed and they will stay closed as long as there is a RCIC injection flow path. In accordance with General Electric (GE) Specification 22A2869AF, the RCIC flow is 625 gpm with 25 gpm diverted to the oil cooler and 600 gpm injected to the RPV. Procedures LOA-FX-101 and LOA-FX-201 provide the option of opening the RCIC min flow valve if RCIC indicated flow falls below 120 gpm. This supplements the operator's primary means of controlling RCIC flow via the flow controller. RCIC capacity closely matches reactor decay heat, therefore this mode of RCIC operation is not judged to be necessary, although it is desirable and may be used several hours into the event if it were available. The loss of this method of flow control would not prevent safe shutdown using RCIC.

In accordance with drawing M-101 sheet 2, the 1(2)E51-F019 valves are in a 2-inch line, and the GE specification identifies 75 gpm for min flow. Therefore, the worse that could potentially happen if the 1(2)E51-F019 valves spuriously open, is 75 gpm could be diverted away from the RPV injection, leaving 525 gpm for the reactor. However, the RCIC flow controller measures system flow after the min-flow line branches off the main injection path. This means that the flow controller will continue to attempt to maintain the desired flow rate (initially 600 gpm) even with the min-flow path open.

Conclusion

EGC denies this NRC issued Finding / NCV that the AOPs established to respond to a main control room fire did not include instructions for verifying the supply breakers for the valves 1(2)E51-F019 and F059 were closed, thereby ensuring they could be operated from the remote shutdown panel. The NRC has not identified or produced any documented requirement, position, or guidance applicable to LaSalle Station that specifically describes the additional short circuits they are contending must be analyzed. Absent a documented standard for which it was reasonable for LaSalle to foresee, this issue does not qualify as a performance deficiency. Additionally, while the 1(2)E51-F019 and F059 valves are described in the LOA procedures, specific alternate operation and coordination steps for these valves are not required as the RCIC system remains capable of performing its fire safe shutdown function without 1(2)E51-F019 and F059 operation.

References

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