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RS-18-146

December 14, 2018

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
2443 Warrenville Road, Suite 210
Lisle, Illinois 60532-4352

Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

Subject: Exelon Evaluation of Preliminary White Finding

- References:
1. Letter from P. L. Loudon (U.S. NRC) to B. C. Hanson (Exelon Generation Company, LLC), "Clinton Power Station – NRC Inspection Report 05000461/2018051 and Preliminary White Finding," dated October 15, 2018 [EA-18-104]
 2. Letter from P. L. Loudon (U.S. NRC) to B. C. Hanson (Exelon Generation Company, LLC), "ERRATA – Clinton Power Station – NRC Inspection Report 05000461/2018051 and Preliminary White Finding," dated November 6, 2018 [EA-18-104]

Exelon Generation Company, LLC (EGC) submits this letter and its attachments to reiterate EGC's positions set forth during the November 30, 2018, Regulatory Conference regarding a finding for Clinton Power Station (CPS) concerning a failure to follow procedures that resulted in the unavailability and inoperability of the Division 2 Emergency Diesel Generator (DG) when it was relied upon for plant safety. In the referenced letters, the NRC preliminarily determined the finding to be White, with low to moderate safety significance.

At the November 30, 2018, Regulatory Conference, EGC articulated why the assumptions relied upon by the NRC to arrive at the finding's White significance are incorrect. EGC also presented new information that had not been previously been considered in the NRC's Probabilistic Risk Assessment (PRA). When properly considered, all of this information demonstrates that the risk characterization of the finding is Green.

The NRC's PRA model should use the best available information by accurately reflecting how CPS would respond to this postulated Station Blackout (SBO) event. This simply did not occur. The NRC's risk evaluation also incorrectly interprets how (or if) the station would declare an

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extended loss of AC power (ELAP), and the reliability of the Division 3 to Division 2 cross-tie and FLEX strategy implementation. The NRC's risk evaluation fails to appropriately model or credit several key factors, specifically: (1) extensive operator knowledge, training, and experience to respond to the event; (2) expansive time available to take recovery actions; (3) specific procedures that control the event and drive it to successful resolution; and (4) resources available for recovery efforts. Instead, NRC assigns these fundamental inputs overly conservative values that directly contradict the data presented at the Regulatory Conference regarding the station's response to the event.

First, Reactor Pressure Vessel (RPV) injection would be restored prior to RPV water level lowering below Top of Active Fuel (TAF) through at least one of multiple, independent, and diverse means. Second, there are simple, procedurally-driven actions that would extend the time to TAF to approximately 24 hours. Third, as described in great detail during the Regulatory Conference and supported with actual data, the Division 2 DG closed air start valves would be quickly identified and recovery of the DG (i.e., opening the air start valves) would have occurred. Contrary to the NRC's assertions, this is a simple task and alone, if properly credited, would cause this finding to be characterized as Green. Fourth, even in the very unlikely event that the Division 2 DG was not recovered quickly, other defense-in-depth actions, such as the Division 3 to Division 2 AC power cross-tie and FLEX, provide additional success paths within the expansive available time. These additional pathways would be pursued in parallel with the DG recovery, but would be undertaken in a procedurally-controlled manner to minimize complexity.

One major flawed assumption underlying the NRC's preliminary White significance determination is its supposition that CPS would declare an ELAP after one hour. This presumption is not consistent with EGC's fact-driven conclusion that the ELAP procedural guidance is valid, and that CPS would not declare an ELAP at one hour given the postulated circumstances. EGC's conclusion is based on input from industry experts on the SBO/ELAP strategy, as well as multiple Senior Reactor Operators from CPS and other stations who confirmed EGC's determination that an ELAP would not be declared at one hour. CPS would not meet the definition of an ELAP and would have pursued and restored the Division 2 DG first, with time margin. This is the best nuclear safety operational strategy, and assuming otherwise ignores the reality of the scenario in which operators would find themselves.

In order to conclude that the finding is of White significance, the NRC must ascribe to several notions regarding CPS's response to the postulated event. A White finding is predicated on the determination that the SBO condition would not be successfully mitigated because all of the following would occur:

- Division 2 DG not recovered within 1 hour,
- ELAP declared at 1 hour,
- Shutdown cooling valve not isolated,
- RPV pressure not controlled low,
- Division 3 to Division 2 AC power cross-tie procedurally complex,
- FLEX strategy inadequate and not sufficiently trained,
- High pressure injection systems fail, and
- Offsite power not recovered within 24 hours.

Particularly at a time when the NRC is embracing transformative approaches to modern, risk-informed regulation, this confluence of overly conservative assumptions that do not reflect the best available and most realistic information should not form the basis for the NRC's significance determination.

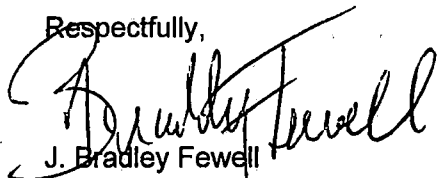
In conclusion, CPS had the knowledge, time, and resources to ensure injection to the RPV prior to the water level reaching TAF. The driving Performance Shaping Factors underlying the NRC's significance determination (e.g., available time, experience and training, complexity, and ergonomics) should be adjusted to accurately reflect these factors, and the NRC should conclude that this event is a Green finding of very low safety significance.

During the Regulatory Conference, EGC advised that we would submit a paper detailing the information we provided, as well as responses to additional information requested by the NRC, within 15 days. Attachment 1 presents EGC's position as described at the Regulatory Conference. Attachment 2 provides responses to specific NRC questions and documentation requests that were communicated to EGC during a conference call with NRC risk analysts (i.e., Laura Kozak and Jeff Mitman) on December 4, 2018. The remaining Attachments provide the specific documents that were requested during the Regulatory Conference and the December 4, 2018, conference call.

There are no regulatory commitments contained in this letter.

Should you have any questions concerning this letter, please contact Mr. Patrick Simpson, Licensing Manager, at (630) 657-2823.

Respectfully,



J. Bradley Fewell

Senior Vice President, Regulatory Affairs and General Counsel

Attachments:

1. Summary of Exelon Position
2. Response to NRC Questions and Documentation Requests
3. EC 626319, "Battery Coping Time Evaluation to Support Inadvertent Isolation of Div. II Air Start Receiver Valves"
4. Training Material on Diesel Generator Malfunctions
5. Senior Reactor Operator Surveys
6. CPS Shift Manager Surveys Regarding ELAP Scenarios
7. Time Validation – Performance of SBO and Starting of Division 2 Diesel Generator
8. 2017 Training Material on Diesel Generator Air Start Flow Path
9. Procedures on Shutdown Cooling Isolation
10. HEP Evaluation Related to Shutdown Cooling Isolation
11. Procedures and Training Material on Maintaining RPV Pressure Low
12. Time Validation – Performance of Division 3 DG to Division 2 Bus Cross-tie

13. Simulator Exercise Guide SE-JIT-42, "Loss of AC, Loss of SDC and Lowering RPV Level," Rev 1
14. CPS Procedure 4200.01C002, "DC Load Shedding During a SBO," Rev 5a
15. FLEX and Cross-tie Training Material
16. Graph of RPV Water Level
17. Inconsistencies Between FLEX SE and Choice Letter Assumptions

cc: NRC Document Control Desk
Margaret Doane, NRC Executive Director for Operations (Attachments 1 and 2 only)
Michael Johnson, NRC Deputy Executive Director for Reactor and Preparedness Programs (Attachments 1 and 2 only)
Ho Nieh, NRC Director – Office of Nuclear Reactor Regulation (Attachments 1 and 2 only)
Christopher Miller, NRC Office of Nuclear Reactor Regulation, Director – Division of Inspection and Regional Support (Attachments 1 and 2 only)
Michael Franovich, NRC Office of Nuclear Reactor Regulation, Director – Division of Risk Assessment (Attachments 1 and 2 only)
NRC Senior Resident Inspector – Clinton Power Station (Attachments 1 and 2 only)
Illinois Emergency Management Agency – Division of Nuclear Safety (Attachments 1 and 2 only)