



# Exelon Generation®

RA-15-021

10CFR 2.201

March 13, 2015

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Subject: Response to Apparent Violation EA-14-178

Oyster Creek Nuclear Generating Station  
Renewed Facility Operating License No. DPR-16  
NRC Docket No. 50-219

Reference: NRC Letter to Exelon, *Oyster Creek Nuclear Generating Station – NRC Preliminary Yellow Finding/Old Design Issue*, dated February 11, 2015.

The referenced letter identified an apparent violation that is being considered for escalated enforcement action related to an NRC inspection performed at the Oyster Creek Nuclear Generating Station regarding the failure of two electromagnetic relief valves (EMRVs). The letter allows for a response to the apparent violation in writing prior to the NRC making its enforcement decision. Exelon Generation Company, LLC accepts the apparent violation and agrees that the failure of the EMRVs is an old design issue and is not indicative of current station performance. During the analysis phase of the EMRV failure response, the following issues were identified associated with the common cause contribution to the significance and are described below.

In the referenced letter, it is not apparent that realistic assumptions for CCF methodology and qualitative information regarding the Exelon investigative information were applied with respect to the NRC CCF evaluation. As identified in the NRC Inspection Report 2014009 (Section 7 of Attachment 3), *“Common Cause Failure – As discussed previously and in the following licensee risk insights paragraph, the conditional EMRV common cause failure probability significantly influences the final risk estimate, resulting in a potential order of magnitude difference.”* It is therefore recognized that the treatment of CCF assumptions is the dominant contributor to determining the significance for the performance deficiency.

Realistic treatment of the EMRV failures is prescribed in the Significance and Enforcement Review Panel (SERP) Process. The guidance document, IMC 0609.01, SIGNIFICANCE AND ENFORCEMENT REVIEW PANEL PROCESS, states in part that “The staff should make realistic assumptions in the bases for its significance determinations.” Furthermore, IMC 0609.01 states that “Qualitative, as well as quantitative, information should be

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considered in deriving a color recommendation.” The issues identified below indicate that realistic assumptions and qualitative information may not have been fully considered when determining a significance for the deficiency:

- The RASP methodology requires that an observed equipment failure or degradation to be classified as having either the potential for CCF or not as applied to the associated CCF group. If it is qualitatively determined that the potential for CCF exists, the SPAR model quantitative methodology assumes with 100% certainty that CCF exists for the observed issue. This methodology therefore represents a binary input (i.e., assume either no CCF or complete CCF due to the observed issue), with no clear process for evaluating CCF in a potential “middle ground” based on available information related to the cause and extent of condition of the failure.
- The full conditional CCF probability is applied to all components in the group with the failed component, regardless of the details or cause associated with the failure. This approach for determining the conditional CCF probabilities (i.e., alpha factors) used in Probabilistic Risk Assessment (PRA) and Standardized Plant Analysis Risk (SPAR) models includes all inter-component dependencies not captured explicitly in the models. Applying the full conditional CCF probability calculated in the SPAR model in this manner is likely to overestimate the risk impact of a failure in an SDP evaluation.
- Using the Alpha methodology (as was applied in this case) for determining the conditional CCF probabilities is not in the spirit of achieving realistic results. Key investigative facts provided by Exelon are not addressed in the inspection report and do not appear to have been incorporated in the SPAR CCF calculation including 1) no history for similar failures in more than 40 years of plant operation; 2) no evidence of abnormally high vibration in the operating cycle leading up to the failure of the two EMRVs; 3) the time-dependent nature of the failure mechanism and 4) the fact that the remaining three EMRVs exhibited significantly less degradation, passed their operability test, and were *known* to not be in a failed state.
- Lastly, following plant shutdown on July 7, 2014 to support extent of condition inspection, all five EMRV actuators stroked satisfactorily during as-found testing.

Consideration of these qualitative facts in determining the CCF contribution would, in Exelon's view, lead to a more realistic estimate of the significance of the deficiency in question.

Should you have any questions concerning this letter, please contact Michael McKenna, Regulatory Assurance Manager, at (609) 971-4389.

Sincerely,

A handwritten signature in black ink, reading "Garey R. Stathes". The signature is written in a cursive style with a large initial 'G'.

Garey Stathes  
Site Vice President  
Oyster Creek Nuclear Generating Station

cc: US NRC, Administrator, Region I  
US NRC, Senior Resident Inspector

bcc: Sr. Vice President, Mid-Atlantic Operations  
Site Vice President-OCNGS  
Plant Manager-OCNGS  
Director Operations-OCNGS  
Sr. Mgr. – Operations Spt & Svcs  
Shift Ops Superintendent – OCNGS  
Operations Support Manager – OCNGS  
Director, Site Training-OCNGS  
Manager, OCNGS Operations Training  
Manager, Regulatory Assurance-OCNGS  
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Manager, Licensing  
Manager, OCNGS Nuclear Oversight  
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Greenlee, Scot  
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