Clinton Power Station
8401 Power Road
Clinton, IL 61727

Exelon Generation®

U-604368
September 7, 2017

10 CFR 2.201

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

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

Subject: Reply to a Notice of Violation; IR 05000461/2017002-02

Reference: Letter from Karla Stoedter (U.S. NRC) to Bryan C. Hanson (Exelon Generation Company, LLC), "Clinton Power Station-NRC Integrated Inspection Report 05000461/2017002 and Notice of Violation," dated August 11, 2017

In the referenced letter, based on the results of an inspection completed on June 30, 2017, the NRC concluded that Exelon Generation Company, LLC (EGC) at the Clinton Power Station was in violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," which requires, in part, that the design control measures provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculation methods, or by the performance of a suitable testing program. The NRC requested EGC to respond to the Notice of Violation within 30 days of the date of the referenced letter.

Attachment 1 to this letter contains EGC's response to the Notice of Violation. EGC does not contest the violation. A summary of regulatory commitments is provided in Attachment 2

If you have any questions regarding this reply, please contact Mr. Dale Shelton, Regulatory Assurance Manager, at (217) 937-2800.

Respectfully,

Theodore R. Stoner
Site Vice President
Clinton Power Station

Attachments 1. Reply to Notice of Violation
2. Summary of Regulatory Commitments

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - Clinton Power Station

IED1
NRR

ATTACHMENT 1
Reply to Notice of Violation

In a letter from Karla Stoedter (U.S. NRC) to Bryan C. Hanson (Exelon Generation Company, LLC (EGC)), dated August 11, 2017, the NRC issued a Notice of Violation. The violation of NRC requirements was identified during an NRC inspection completed on June 30, 2017. The violation is repeated below:

> Title 10 of the Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that design control measures provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculation methods, or by the performance of a suitable testing program. The fuel building crane and the supporting fuel building steel structure are Seismic Category I components/structures subject to the 10 CFR Part 50, Appendix B, quality assurance requirements, and the applicable structural steel design specification is the American Institute of Steel Construction (AISC) 7th or 8th Edition.
>
> Contrary to the above,
>
> - On May 27, 2016, in Calculation No. SDQ15–24-DG09, Revision 12, and in the associated responses dated July 11, 2016, and July 30, 2016, the licensee failed to verify or check adequacy of the design for the fuel building crane and crane support structure elements. Specifically, the licensee verification process failed to identify that the load distribution used in the calculations was not justified, and that the use of the plate girder bearing stiffener provisions of the AISC Section 1.10.5.1 and the assumption of flexible supports at specific bolted connections in determination of wheel load distribution were not consistent with the field configuration based on design drawings.
>
> - On August 11, 2016, in Calculation No. SDQ15–24-DG09, Revision 13, the licensee failed to verify or check adequacy of the design for the fuel building crane and crane support structure elements. Specifically, the licensee verification process failed to identify that the unexpectedly high design margins for the bolt shear as indicated by the analysis were not justified because the evaluation incorrectly credited friction forces for reduction in the bolt stresses. Additionally, the bolt tensions calculated in the analysis were incorrect because the lever arm between the force couple used for determining bolt tension was incorrect and the AISC method used for determination of prying force was not applicable to the configuration being evaluated.
>
> - On October 11, 2016, in Calculation No. SDQ15–24-DG09, Revision 14, and in the associated response dated January 5, 2017, the licensee failed to verify or check adequacy of the design for the fuel building crane and crane support structure elements. Specifically, the licensee verification process failed to identify that the unexpectedly high design margins indicated by the analysis in Revision 14 of the calculation were not justified because the evaluation incorrectly credited frictional and bolt pre-tension forces in reduction of bolt shear and tension stresses. In the response dated January 5, 2017, the licensee did not correctly combine the vertical and horizontal seismic responses while applying the 100–40–40 percent rule for combining effects of spatial components of earthquake as described in Regulatory Guide 1.92.
>
> This violation is associated with a Green Significance Determination Process finding.

ATTACHMENT 1
Reply to Notice of Violation

Response:

1) Reason for the violation

EGC received a non-cited violation (NCV) in 2016 for Clinton Power Station associated with the design control issues associated with the Fuel Building (FB) crane and support structure elements as described in NRC Inspection Report 05000461/2016010, dated March 3, 2016. The issue was entered into the Corrective Action Program (CAP) under Issue Report (IR) 2637685 for inadequate technical qualification of the FB crane rail connections. A corrective action (CA) was created to address the NCV; however, the resulting change did not fully resolve the issue and was not effective at addressing all concerns.

During follow-up inspection activities, the NRC identified issues that still remained with regards to Calculation SDQ15–24-DG09 and the corrective action from the 2016 NCV. Specifically, corrective actions did not adequately resolve the issue of qualification of the FB crane and crane support structure elements for postulated seismic events. The cited violation was entered into the Corrective Action Program under IR 4001089.

The cause for violation 05000461/2017002-02 identified through a Corrective Action Program Evaluation (CAPE) was that suitable technical human performance behaviors were not used to apply the appropriate level of rigor during the screening process per procedure HU-AA-1212, "Technical Task Risk/Rigor Assessment, Pre-Job Brief, Independent Third Party Review, and Post-Job Review." This resulted in failure of design control measures to provide for the verifying or checking the adequacy of design of the fuel handling building crane support structure elements.

2) Corrective steps that have been taken and the results achieved

Administrative controls are in place for the FB crane to limit the maximum lifted loads to no more than 62 tons (i.e., the qualified capacity prior to the upgrade to 125 tons) until questions related to full qualifications are resolved.

3) Corrective steps that will be taken

Under CA 4001089-19, EGC will conduct a one-time briefing on HU-AA-102, "*Technical Human Performance Practices*," to the design engineering population with focus on behaviors to maintain proper management involvement, questioning attitude, and challenge.

Under CA 4001089-02, EGC will revise appropriate design calculations and other documents to demonstrate compliance with the plant's design and licensing basis.

4) Date when full compliance will be achieved

The briefing of design engineering population on HU-AA-102 will be completed by September 29, 2017. Full compliance will be achieved with revision of the appropriate design calculations and other documents to demonstrate compliance with the plant's design and licensing basis by March 31, 2018.

ATTACHMENT 2
Summary of Regulatory Commitments

The following table identifies those actions committed to by Exelon Generation Company, LLC (EGC) for the Clinton Power Station in this submittal. Any other actions discussed in the submittal represent intended or planned actions by EGC, are described only for information, and are not regulatory commitments.

Commitment	Committed Date or "Outage"	Commitment Type	
		One-Time Action (Y/N)	Programmatic (Y/N)
EGC will conduct a one-time briefing on HU-AA-102, Technical Human Performance Practices to the design engineering population with focus on behaviors to maintain proper management involvement, questioning attitude, and challenge.	September 29, 2017	Yes	No
EGC will revise appropriate design calculations and other documents to demonstrate compliance with the plant's design and licensing basis.	March 31, 2018	Yes	No