



Nebraska Public Power District

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NLS2015084

2.201

July 22, 2015

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Reply to Notice of Violation; EA-15-089
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Reference: Letter to Oscar A. Limpias (Nebraska Public Power District) from Anton Vogel
(U.S. Nuclear Regulatory Commission) dated June 22, 2015, "Cooper Nuclear
Station – NRC Component Design Basis Inspection Report No.
05000298/2015007 and Notice of Violation"

Dear Sir or Madam:

The purpose of this correspondence is to provide Nebraska Public Power District's (NPPD) reply to a Notice of Violation in accordance with 10 CFR 2.201. By letter dated June 22, 2015, (Reference), the Nuclear Regulatory Commission cited NPPD for being in violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." The violation is concerned with Cooper Nuclear Station failing to evaluate the lack of missile protection on the emergency diesel generator fuel oil storage tank vents.

NPPD accepts the violation and recognizes the importance of its responsibilities with respect to design basis control. As discussed in Attachment 1 to this letter, NPPD is taking prompt action to return to compliance with 10 CFR Part 50, Appendix B, Criterion III, and to prevent recurrence of this violation.

Attachment 2 contains a regulatory commitment being made by this submittal. If you have any questions concerning this matter, please contact Jim Shaw, Licensing Manager, at (402) 825-2788.

Sincerely,

Oscar A. Limpias
Vice President – Nuclear and
Chief Nuclear Officer

/jf

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IED/
NRR

Attachments: 1. Reply to Notice of Violation; EA-15-089
2. List of Regulatory Commitments

cc: Regional Administrator w/ attachments
USNRC - Region IV

Cooper Project Manager w/ attachments
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/ attachments
USNRC - CNS

NPG Distribution w/ attachments

CNS Records w/ attachments

ATTACHMENT 1

Reply to Notice of Violation; EA-15-089 Cooper Nuclear Station, Docket No. 50-298, DPR-46

During Nuclear Regulatory Commission (NRC) inspection activities conducted April 6, 2015, through May 8, 2015, a violation of NRC requirements was identified. The violation and Nebraska Public Power District's (NPPD) reply are set forth below:

Restatement of the Violation

"Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2 and as specified in the license application, for those components to which this appendix applies, are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, since July 2010 the licensee failed to assure that applicable regulatory requirements and the design basis were correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to correctly translate regulatory and design basis requirements associated with tornado and high wind-generated missiles into design information necessary to protect the emergency diesel generator fuel oil storage tank vent line components.

This violation is associated with a Green Significance Determination Process finding."

Background

During the 2015 Component Design Bases (CDB) Inspection, conducted April 6, 2015, to May 8, 2015, at Cooper Nuclear Station (CNS), NRC personnel questioned whether the emergency diesel generator (EDG) fuel oil storage tank vent lines had been analyzed to withstand a range of tornado-generated missile impacts without loss of function. Calculation NEDC 13-046, Revision 1, "Diesel Generator Storage Tank Vent Line Tornado Missile Durability" (Reference 1), and Engineering Evaluation (EE) 15-012, Revision 0, "Diesel Generator Diesel Oil Storage Tank Vent Tornado Missile Analysis," (Reference 2) had been developed by CNS engineering to demonstrate that the current design was acceptable without further action. Specifically, this calculation evaluated the ability of the EDG fuel oil storage tank vents to remain operable following an impact from design basis tornado generated missiles.

As described in Reference 1, the EDG fuel oil storage tank vent lines are part of the fuel oil subsystem of the EDG system. Each component of this system is classified as Seismic Class 1S. Furthermore, the system design basis requirements contained in Updated Safety Analysis Report (USAR), Chapter XII, Section 2.3.3.2.2, "Tornado Generated Missiles," specifies that all Class I structures are designed to provide protection against tornado generated missiles including:

1. A 35-foot long utility pole with a 14-inch butt with an impact velocity of 200 miles per hour.
2. A one-ton missile such as a compact-type automobile with an impact velocity of 100 miles per hour and a contact area of 25 square feet.
3. A two-inch extra heavy pipe, 12 feet long.
4. Any other missile resulting from failure of a structure or component or one which has potential of being lifted from storage or working areas at the site.

Reference 1 determined the maximum deflection the vent line can experience without permanent deformation, the amount of deflection the vent line can experience without fracture, and the amount of force that would be required to fracture the vent line. Forces from the first three USAR specified tornado generated missiles were determined for comparison to the maximum allowable force the vent line can withstand. Using the worst case tornado generated missile, the calculation concluded that "Due to the overwhelming magnitude of the force and the very short duration of the impact, the vent pipes will shear off or fracture rather than bend and crimp."

In the CDB Inspection Report dated June 22, 2015 (Reference 3), the NRC discussed their review of Reference 1 and determined that the calculation did not provide an adequate design analysis that would assure that the EDG fuel oil vent lines could maintain an open vent path during a postulated tornado event under all missile scenarios. Specifically, the licensee failed to verify the adequacy of design of the vents for the EDG 1 and 2 fuel oil storage tanks to withstand impact from a tornado driven missile hazard, or to evaluate for exemption from missile protection requirements using an approved methodology.

Reason for Violation

NPPD accepts the cited violation.

CNS performed an apparent cause evaluation. The team reviewed the history of this issue and the information provided in Reference 3 including the discussion from USAR, Chapter XII, Section 2.3.3.2.2 describing the four missile categories.

The apparent cause for the condition is: An implicit assumption without sufficient justification was made in preparing and reviewing of both EE 15-012, Revision 0, and NEDC 13-046, Revision 1, that the analysis of the fourth tornado missile impact scenario was bounded by the analyses of the first three scenarios.

In summary, an error was made in omitting the analysis of this scenario or justifying in some fashion why it was not done. To provide a complete and thorough analysis, it should have been included in both the EE and the NEDC documents. The assumption made was that the condition was bounded by analysis of the first three scenarios cited in the CNS USAR. However, since no specific explanation or analytical proof was provided, it appeared that neither Reference 1 nor Reference 2 addressed the fourth scenario listed in the CNS USAR.

Corrective Steps Taken and Results Achieved

Incorporated a compilation of CNS and industry documentation into an engineering report to substantiate the conclusions of the design basis documents that evaluated the EDG fuel oil storage tank vents ability to perform their design function following a design basis missile strike.

Removed cap on the storage tank fill opening and installed a screen to ensure operability per the associated work order.

Reinforced with engineers qualified to prepare or review calculations, the need to explicitly and literally state the technical issues when performing calculations.

Corrective Action to Address Apparent Cause

Incorporate lessons learned from the apparent cause evaluation as part of the Technical Rigor topic during engineering continuing training.

Corrective Step That Will Be Taken to Restore Full Compliance

Revise NEDC 13-046, Revision 1, to directly address all four tornado impact scenarios as described in Section XII, 2.3.3.2 of the CNS USAR.

Date When Full Compliance Will Be Achieved

NPPD will restore full compliance with 10 CFR Part 50, Appendix B, Criterion III, by August 31, 2015.

References

1. NEDC 13-046, Revision 1, "Diesel Generator Storage Tank Vent Line Tornado Missile Durability"
2. EE 15-012, Revision 0, "Diesel Generator Diesel Oil Storage Tank Vent Tornado Missile Analysis"
3. Letter to Oscar A. Limpias (Nebraska Public Power District) from Anton Vogel (U.S. Nuclear Regulatory Commission) dated June 22, 2015, "Cooper Nuclear Station – NRC Component Design Basis Inspection Report No. 05000298/2015007 and Notice of Violation"

ATTACHMENT 2

List of Regulatory Commitments

This table identifies actions discussed in this letter which Nebraska Public Power District (NPPD) commits to perform. Any other actions discussed in this submittal are described for the Nuclear Regulatory Commission's information and are not regulatory commitments.

COMMITMENT/COMMITMENT NO.	TYPE (Check one)		SCHEDULED COMPLETION DATE
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
NPPD will restore full compliance with 10 CFR Part 50, Appendix B, Criterion III. NLS2015084-01	X		August 31, 2015