

From: Wiebe, Joel
Sent: Thursday, July 8, 2021 8:44 AM
To: 'Jessie.Hodage@exeloncorp.com'
Cc: 'Henderson, Phillip A:(Exelon Nuclear)'
Subject: Request for Additional Information - Braidwood, Byron, and Ginna -
Amendment to Address the Issues in Westinghouse NSALs
Attachments: L-2021-LLA-0066 RAI.docx

Jessie,

Let me know if you need a clarification call. A response to the RAI is requested within 30 days of receipt of this request.

Joel

Hearing Identifier: NRR_DRMA
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Recipients:
"Henderson, Phillip A:(Exelon Nuclear)" <Phillip.Henderson@exeloncorp.com>
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REQUEST FOR ADDITIONAL INFORMATION

PROPOSED CHANGES TO HEAT FLUX HOT CHANNEL FACTOR TECHNICAL SPECIFICATIONS

SELECT EXELON GENERATION UNITS

EPID L-2021-LLA-0066

1.0 INTRODUCTION

By application dated April 7, 2021, Exelon Generation (the licensee) requested changes to the Technical Specifications (TSs) for Braidwood Station, Units 1 and 2, Byron Station, Units 1 and 2, and R. E. Ginna Nuclear Power Plant (Braidwood 1 and 2, Byron 1 and 2, and Ginna, respectively) (Agencywide Document Access and Management System Accession No. ML21097A226). The proposed changes would revise Required Actions and Surveillance Requirements associated with TS 3.2.1, "Heat Flux Hot Channel Factor ($F_Q(Z)$)." These revisions implement a series of more restrictive required actions and more thorough surveillance requirements that are used in instances where the transient heat flux hot channel factor, $F_Q^W(Z)$, is not within its operating limits.

Similar required actions and surveillance requirements had been administratively implemented at each facility under the auspices of NRC Administrative Letter (AL) 89-10, "Dispositioning of Technical Specifications that are Insufficient to Assure Plant Safety." These actions had been implemented since Westinghouse notified its customers, including the licensee, that the existing required actions and surveillance requirements associated with TS 3.2.1 may not restore adequate operating margin to ensure that the F_Q operating limit would prevent any of the facilities from exceeding the linear heat rate assumed in the plants' emergency core cooling system (ECCS) evaluations.

2.0 REGULATORY REQUIREMENTS

The performance requirements and design criteria applicable to the power distribution assumed in the safety analysis are those that pertain to accident and transient analysis. Primarily these include the requirements contained in 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors," and General Design Criterion (GDC) 10, contained in Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR 50.

The requirements in 10 CFR 50.46 state, in part, that ECCS shall be designed such that an evaluation performed using an acceptable evaluation model demonstrates that acceptance criteria, set forth in 10 CFR 50.46(b), including peak cladding temperature, cladding oxidation, hydrogen generation, maintenance of coolable core geometry, and long-term cooling are met for a variety of hypothetical loss-of-coolant accidents (LOCAs), including the most severe hypothetical LOCA.

GDC 10, "Reactor Design," states as follows:

The reactor and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.

The requirements for TS are set forth in 10 CFR 50.36, "Technical Specifications." Specific categories of TS are provided in 10 CFR 50.36(c). These include limiting conditions for operation (LCOs). If an LCO is not met, the facility must be shut down, or other acceptable remedial action must be taken. The licensee proposed a set of remedial actions, including reductions in the operating space defined by the combination of rated thermal power and axial flux difference (AFD) that would ensure that the $F_Q^W(Z)$ margins continue to ensure that the plants continue to operated in a manner bounded by the initial conditions assumed in the design basis accident and transient analyses. These actions should, therefore, continue to assure compliance with the requirements of 10 CFR 50.46 and GDC 10.

3.0 REQUEST

The licensee stated that the required thermal power and axial flux difference (AFD) reductions, which were proposed to be relocated to the Core Operating Limits Report, would initially be those contained in Table 1 of Attachment 1 to the licensee's April 7, 2021, submittal. These were based on interim, compensatory measures that had been recommended from Westinghouse when the current required actions and completion times were deemed inadequate. The technical basis for these reductions in thermal power and AFD is not apparent to the NRC staff. Provide information that demonstrates the proposed operating space reductions contained in Table 1 bring about the desired $F_Q^W(Z)$ margin improvements, thus assuring compliance with 10 CFR 50.46 and GDC 10 requirements.