From: Robert Kuntz
Sent: Friday, June 2, 2023 1:21 PM
To: Taken, Jason C.:(Exelon Nuclear)
Subject: RAI RE: LaSalle PTLR amendment request (EPID L-2022-LLA-0173)

Mr. Taken,

By letter dated November 10, 2022, Constellation Energy Generation, LLC, (Constellation) submitted a license amendment request to relocate the reactor pressure-temperature (P-T) limit curves into a pressure-temperature limits report (PTLR) at LaSalle County Station, Units 1 and 2. The Nuclear Regulatory Commission (NRC) staff has determined that additional information is required to complete its review. The NRC staff's request for additional information (RAI) is included. During a clarification discussion on June 2, 2023 a 30 day response to the RAI was agreed upon. Therefore, the NRC staff expects a response to this RAI on or before July 3, 2023. If you have any questions contact me.

Robert Kuntz
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REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST TO

RELOCATE PRESSURE-TEMPERATURE LIMIT CURVES INTO

PRESSURE TEMPERATURE LIMITS REPORT

LASALLE COUNTY STATION, UNITS 1 AND 2

DOCKET NOS. 50-373 AND 50-374

RENEWED FACILITY OPERATING LICENSE NOS. NPF-11 AND NPF-18

EPID NO. L-2022-LLA-0173

1.0 INTRODUCTION

By application dated November 10, 2022 (ADAMS Package ML22332A448) and supplemented on January 10, 2023 (ADAMS Accession No. ML23010A227), Constellation Energy Generation, LLC (Constellation or the licensee), requested changes to the renewed facility operating license and technical specifications (TSs) for the LaSalle County Station (LSCS), Units 1 and 2. The license amendment request (LAR) proposes to relocate the reactor pressure-temperature (P-T) limit curves into a pressure-temperature limits report (PTLR). The LAR is submitted in accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or

early site permit." The LAR proposes the new TS Administrative Controls section as TS Section 5.6.7, "Reactor Coolant System (RCS) Pressure and Temperature Limits Report (PTLR)." The proposed P-T limit curves were developed for 54 effective full power years (54 EFPY).

The NRC staff requests additional information (RAIs) in order to complete its review.

2.0 REGULATORY BASIS

The regulations in 10 CFR Part 50, Appendix G, requires: (1) sufficient fracture toughness for RPV ferritic materials to provide adequate safety margins during any condition of normal operation, including anticipated operational occurrences and system hydrostatic tests; (2) P-T limits that satisfy the American Society of Mechanical Engineers (ASME) Code, Section XI, Appendix G, and the minimum temperature requirements during normal heatup, cooldown, and pressure test operations; and (3) applicable surveillance data from reactor pressure vessel (RPV) material surveillance programs developed in accordance with 10 CFR 50, Appendix H, "Reactor Vessel Material Surveillance Program Requirements," be incorporated into the calculations of P-T limits.

The NRC Generic Letter (GL) 96-03, "Relocation of Pressure and Temperature Limit Curves and Low Temperature Overpressure Protection System Limits," dated January 31, 1996 (No. ML03111004) permits relocation of the P-T limits from the TS to a PTLR.

Regulatory Guide (RG) 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials," dated May 1988 (ADAMS Accession No. ML003740284), describes procedures for calculating the adjusted nil-ductility transition reference temperature RT_{NDT} (ART) due to neutron irradiation.

The NRC Regulatory Issue Summary (RIS) 2014-11, "Information on Licensing Applications for Fracture Toughness Requirements for Ferritic Reactor Coolant Pressure Boundary Components," dated October 14, 2014 (ADAMS Accession No. ML14149A165) provides evaluation guidance for P-T limit curves and PTLRs, including the consideration of neutron fluence and structural discontinuities in the development of P-T limit curves (ADAMS Accession No. ML14149A165).

3.0 DRAFT REQUESTS FOR ADDITIONAL INFORMATION (RAIs)

RAI No. LSCS-PTLR-LAR-1

Scope of RAI: Design Dimensions for Calculation of P-T Limits

Background and Basis for Request:

The PTLR uses the following equations in BWROG Report No. BWROG-TP-11-022-A, Rev. 1, to derive the P-T point sets for assessed RPV components that were evaluated for the P-T limit curves provided in the LAR:

- Equation 2.5.2-2 for P_{allow} values of the limiting RPV beltline shell component
- Equation 2.5.3-2 for P_{allow} values of the RPV bottom head
- Either equations 2.5.3-3a or 2.5.3-3b for applied K_{It} thermal stress intensity values, equations 2.5.3-5a, 2.5.3-5b, or 2.5.3-5c for $K_{Ip\text{-}applied}$ pressure stress intensity values and

Equation 2.5.3-6 for P_{allow} values of the non-beltline RPV N2 feedwater nozzle or for N6 low pressure coolant injections nozzle in the RPV beltline region

The P_{allow} equations or K-type stress intensity equations use component-specific dimensional data as inputs, including component wall thickness ("t") and inside radius ("Ri") dimensions for P_{allow} calculations of limiting beltline shell and the bottom head dome, and some nozzle-specific dimensions if either finite element modeling solutions or Welding Research Council WRC-175 methods are used for P_{allow} or K-type stress intensity solutions for the nozzle types. During the audit, the staff was able to confirm that SIA Calculation No. 2001063.301, 2001063.302 and 2001063.305, Rev. 2 provided the applicable component-specific information, with the exception of the dimensional design data specifically needed for calculations of the N6 feedwater (FW) nozzles in the LSCS units.

Request: Provide all dimensional design data needed for the P-T limit calculations of the LSCS Unit 1 and 2 RPV FW nozzles, including inside and outside radius values for the region of the RPV shell adjoined to the FW nozzles, and any additional nozzle-specific dimensions needed for the calculations (e.g., necessary nozzle corner radius values or wall thickness values).

RAI No. LSCS-PTLR-LAR-2

*Scope of RAI***:** Omitted One-Quarter Thickness (1/4t) Adjusted Reference Temperature (ART) Value for LSCS, Unit 1, Middle Shell Axial Weld #3-308, BG.

Background and Basis for Request:

During the audit, the licensee confirmed that Table 7 in the PTLR was missing a ¼t ART line item calculation and value for LSCS, Unit 1, middle shell axial weld 3-308, BG at 54 effective full power years (54 EPFY).

Request: Provide the 54 EPFY ¼t ART calculation and all related input values for middle shell axial weld 3-308, BG.

RAI No. LSCS-PTLR-LAR-3

*Scope of RAI***:** Potential Inconsistency Between P-T Limit Curves Figures (Figures 1 – 6) in the PTLR and Corresponding P-T Limit Curve Figures in SIA Calculation 2001063.305, Revision 2.

Background and Basis for Request:

The LAR indicates that the P-T limit curves provided in Figures 1 – 6 were calculated in accordance with the approved guidance and methodology in BWROG Report No. BWROG-TP-11-022-A, Rev. 1. The LAR states that the P-T limit curves are documented in in SIA Calculation No. 2001063.305, Rev. 1. During the audit the staff was provided with SIA Calculation 2001063.305, Rev. 2 as the source of the P-T curves. However, the staff noted that the P-T curves in this calculation were not consistent with those in the LAR.

Request:

(1) Clarify which version of SIA Calculation No. 2001063.305 documents the basis for the P-T limit curves intended for use in the PTLR.

(2) Describe and justify the differences between the LAR and SIA Calculation No. 2001063.305, revisions 1 and 2. Do these changes affect consistency with the methodology of BWROG Report No. BWROG-TP-11-022-A, Rev. 1?
(3) Revise, as necessary, the LAR to ensure that the basis for the P-T limits in the LAR is consistent with the identified reference documents.

Hearing Identifier: NRR_DRMA
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