

From: Wiebe, Joel
Sent: Thursday, February 4, 2021 2:15 PM
To: Lisa Simpson (Lisa.Simpson@exeloncorp.com)
Cc: 'Simpson, Patrick R.:(Exelon Nuclear)'
Subject: DRAFT RAIs for Byron Station, Unit Nos. 1 and 2, re: Proposed Defueled Technical Specifications and Revised License Conditions for Permanently Defueled Condition (EPID L-2020-LLA-0238)

Lisa,

By application dated October 29, 2020 (Agencywide Documents Access and Management System Accession No. ML20304A147), Exelon Generation Company, LLC, requested a License Amendment Request re: "Proposed Defueled Technical Specifications and Revised License Conditions for Permanently Defueled Condition" for Byron Station, Unit Nos. 1 and 2. The proposed changes would revise the renewed facility operating licenses and TSs consistent with the permanent cessation of operations and permanent defueling of the reactors.

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing your submittal and has identified areas where additional information is needed to complete the review. Below, please find DRAFT requests for additional information (RAIs). Following a brief evaluation period by your staff we will contact you. Should your staff identify the need to discuss the DRAFT RAIs any further, we will coordinate a teleconference (non-public). Should no follow-up discussions or clarifications be necessary, the NRC staff will proceed by designating these RAIs as "FINAL" at which time an established response date by Exelon will be determined.

If you have any questions/comments, please contact me at 301-415-6606 or Joel.Wiebe@nrc.gov.

Joel

BYRON, UNITS 1 and 2

REQUEST FOR ADDITIONAL INFORMATION

PROPOSED DEFUELED TECHNICAL SPECIFICATIONS AND

REVISED LICENSE CONDITIONS FOR PERMANENTLY DEFUELED CONDITION

DOCKET NOS. STN 50-454 AND STN 50-455

By application dated October 29, 2020 (Agencywide Documents Access and Management System Accession No. ML20304A147), Exelon Generation Company, LLC, requested a change to the Technical Specifications (TS) for Byron Station, Unit Nos. 1 and 2 (Byron). The proposed changes would revise the TSs consistent with the permanent cessation of operations and permanent defueling of the reactors.

The provisions in 10 CFR 50.36(c)(6), "Decommissioning," in part, apply only to nuclear power reactor facilities that have submitted the certifications required by 10 CFR 50.82(a)(1). For such facilities, technical specifications involving safety limits, limiting safety system settings, and limiting control

system settings; limiting conditions for operation; surveillance requirements; design features; and administrative controls will be developed on a case-by-case basis.

In the application the licensee states, “[t]his request applies the principles identified in 10 CFR 50.36(c)(6), Decommissioning, for a facility which has submitted certifications required by 50.82(a)(1) and proposes changes to the Administrative Controls appropriate for the Byron permanently defueled condition.”

To complete its review of the TS changes, the U.S. Nuclear Regulatory Commission (NRC) staff requests the following additional information:

Discussion: (DRAFT-RAI-1a & 1b) – re: Final Safety Analysis Report (FSAR)

The Final Safety Analysis Report (FSAR) is the principal document upon which the NRC bases its safety evaluation supporting the issuance of an operating license for a nuclear power plant. The updated FSAR (UFSAR) incorporates changes made to the FSAR in accordance with 10 CFR 50.71(e). The UFSAR serves as a major source of information on the current plant design and supporting analyses.

NRC decommissioning guidance (e.g., RG 1.184) discusses that the FSAR, which provides a licensing basis for the evaluation of licensing activities under 10 CFR 50.59, will have to be updated to cover decommissioning activities.

The Byron license amendment request (LAR) Attachment 1 states, “[t]he Technical Specifications Bases Control Program is being modified to reflect that once the facility is permanently defueled the title of the UFSAR will be revised to DSAR.” LAR Attachment 3, “Markup of Technical Specifications Pages,” reflects this proposed change in a markup of TS 5.5.14, “The Technical Specifications (TS) Bases Control Program,” by replacing UFSAR with DSAR. DSAR is not a term that is described, defined, or required by NRC regulation. The proposed change, UFSAR revised to DSAR, occurs in two instances within Byron TS 5.5.14 (emphasis added in bold *italic*):

Byron TS 5.5.14.b currently states:

Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:

1. a change in the TS incorporated in the license; or
2. a change to the ***UFSAR*** or Bases that requires NRC approval pursuant to 10 CFR 50.59.

Byron TS 5.5.14.c currently states:

The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the ***UFSAR***.

Staff Requests:

Given that NRC regulations, such as 10 CFR 50.59, are written in terms of FSAR, and DSAR is not a term that is described, defined, or required in NRC regulations;

(DRAFT-RAI-1a): Please explain how the DSAR (replaces UFSAR in TS 5.5.14.b.2 above) will remain subject to the provisions of 10 CFR 50.59.

Additionally, 10 CFR 50.71(e)(6) states, "The updated FSAR [UFSAR] shall be maintained by the licensee until the Commission terminates their license." Given NRC requirements for licensees to maintain the updated FSAR until the Commission terminates their license and that a DSAR is not described, defined, or required in NRC regulations;

(DRAFT-RAI-1b): Please explain how the Byron TS Bases (DSAR replaces UFSAR in TS 5.5.14.c above) will be maintained consistent with the updated FSAR under this proposed title change.

Discussion: (DRAFT-RAI-2) - Regulatory Basis/Issue re: New Fuel Handling Accident Analysis

Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," Rev. 0, July 2000 provides the methodology for analyzing the radiological consequences of several design-basis accidents (DBAs) to show compliance with 10 CFR 50.67. Regulatory Guide 1.183 provides guidance to licensees on acceptable application of alternate source term (AST) submittals, including acceptable radiological analysis assumptions for use in conjunction with the accepted AST.

NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition," (SRP) Section 15.0.1, "Radiological Consequence Analyses Using Alternative Source Terms," Rev. 0, July 2000 provides review guidance to the staff for the review of alternative source term amendment requests. Section 15.0.1 states that the NRC reviewer should evaluate the proposed change against the guidance in RG 1.183. The dose acceptance criteria for the fuel handling accident (FHA) are a Total Effective Dose Equivalent (TEDE) of 6.3 rem at the exclusion area boundary (EAB) for the worst 2 hours, 6.3 rem at the outer boundary of the low population zone (LPZ), and 5 rem in the control room for the duration of the accident.

In Attachment 1 of the LAR, Exelon states that a new Fuel Handling Accident (FHA) analysis was performed to determine the Control Room (CR), Exclusion Area Boundary (EAB), and Low Population Zone (LPZ) doses at Byron. This analysis is required to replace the current FHA which only covers FHA events due to a fuel assembly being dropped on the reactor core, which currently bounds the radiological consequences of an FHA in the Spent Fuel Pool.

Staff Request:

The LAR indicates that the analysis conforms to RG 1.183 and that the limits of RG 1.183 continue to be met, however, many of the assumptions and parameters used are not specified and the doses calculated are not specified.

(DRAFT-RAI-2): Please provide sufficient technical details of the new FHA to allow for evaluation. The NRC staff requests this information include but not necessarily be limited to; computer program(s) used to calculate dose, key input variables, calculated dose to CR, EAB, and LPZ, source term use in the new

FHA analysis, fall height of fuel assembly, water coverage, decontamination factors, and atmospheric dispersion factors.

In addition to the above RAIs, the NRC staff has identified the following apparent editorial errors:

- a. There appears to be an editorial error in Attachment 1 of the LAR. In the detailed description of the proposed changes to Byron TS Section 5.5.14, "Technical Specifications (TS) Bases Control Program," the column entitled "Basis for Change" uses the acronym DSAR for the first time in the LAR without spelling it out or providing a description/definition. If DSAR is retained (could be changed based on a response to other questions), then spell out the acronym on its first use in the LAR.
- b. There appears to be an editorial error in Attachment 3 (Markups of Technical Specifications Pages) of the LAR. In the markup of the proposed changes to Byron TS Section 5.5.14, "Technical Specifications (TS) Bases Control Program," DSAR is used for the first time in the TSs without spelling out the acronym. Please spell out the acronym on its first use in the TSs.
- c. There appears to be an editorial error in Attachment 1 of the LAR. In the detailed description of the proposed changes to Byron TS Section 1.1, "Definitions," the column entitled "Basis for Change" states (on two occasions), "...the LAR proposing changes to TS Section 1.1 and 5.0 (Reference 2) which is currently under NRC review." However, the citing of 'Reference 2' appears to be incorrect because 'Reference 2' does not propose any changes to TS Section 1.1 or 5.0. Please identify the correct reference.

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