

**POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 (PBN)  
SUBSEQUENT LICENSE RENEWAL APPLICATION (SLRA)  
DRAFT REQUEST FOR ADDITIONAL INFORMATION (RAI) AND  
REQUEST FOR CONFIRMATION OF INFORMATION (RCI)  
SAFETY - SET 3**

SLRA Section 3.5.2.2.2.7, “Expected Further Evaluation for Loss of Fracture Toughness Due to Irradiation Embrittlement of Reactor Vessel (RV) Supports for NRC Review of the First Three SLRAs”

DRCI 3.5.2.2.2.7-3

Information

Based on the audit review of Bechtel Specification No. 6118-C-10, “Specification for Detailing, Fabrication and Delivery of Major Component Support Structures for the Point Beach Nuclear Plant Unit 1. Wisconsin Michigan Power Company. Bechtel Corporation, San Francisco CA for Westinghouse Electric Corporation Atomic Power Divisions,” Revision 2, the staff noted that the welding shall be performed in accordance with paragraph 14.7. The staff also noted that this would indicate that the weld strength is lower than the T-1 steel material strength.

Request

Confirm that all welding of T-1 steels analyzed in the fracture mechanics evaluation of the reactor vessel steel support structures in SLRA FE 3.5.2.2.2.7 were performed in accordance with paragraph 14.7 as specified in Bechtel Specification No. 6118-C-10.

## SLRA Section B.2.2.1, “Fatigue Monitoring”

### DRAI B.2.2.1-2

#### Regulatory Basis

10 CFR 54.21(a)(3) requires an applicant to demonstrate that the effects of aging for structures and components will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation. One of the findings that the NRC staff must make to issue a renewed license (10 CFR 54.29(a)) is that actions have been identified and have been or will be taken with respect to managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21, such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis. In order to complete its review and enable it to make a finding under 10 CFR 54.29(a), the staff requires additional information in regard to the matters described below.

#### Background

The “monitoring and trending” program element of GALL-SLR AMP X.M1, in part, indicates that the monitoring of plant operating conditions or water chemistry parameter conditions is performed to provide inputs for components with stress-based fatigue calculations or environmental fatigue calculations.

In comparison, NextEra (the applicant) used the FatiguePro computer program to perform stress-based fatigue monitoring and analysis for certain ASME Code Class 1 and 2 components, as described in Structural Integrity Associates, Inc. (SIA) Calculation Package No. 2000088.303, Revision 0. The SIA report and implementing procedure (NP 7.7.19, Attachment B) for fatigue monitoring indicate that the stress-based method is used to monitor and evaluate the fatigue for certain Class 1 and 2 components such as steam generator feedwater nozzles, pressurizer shells, and hot leg nozzles for pressurizer surge lines. The method monitors operating conditions such as flow rates and temperatures.

SLRA Section B.2.2.1 also indicates that the applicant contracted with SIA to review the FatiguePro program and received an updated report that incorporated FatiguePro data through 2019 for 80-year life projections. The SLRA further states that, going forward, the applicant will no longer use FatiguePro and instead will use the manual count method.

#### Issue

The staff needs additional information to clarify why the manual count method is sufficient for the components, for which the stress-based fatigue monitoring has been used, given that the manual count method is mainly for counting certain pre-determined transient cycles (e.g., heatup and cooldown cycles) but may not be sufficient to monitor complex temperature or pressure variations for the components (e.g., thermal stratification transients).

#### Request

Discuss why the manual count method is sufficient for the components for which the stress-based fatigue monitoring has been used. As part of the response, clarify (1) whether the monitoring data previously collected from stress-based fatigue monitoring will be used as basis information for fatigue monitoring (e.g., monitoring data from pressurizer surge lines) and (2) whether the system delta T of the pressurizer surge line (temperature difference between pressurizer and reactor coolant system hot leg) will be monitored to ensure that the system delta T does not exceed a certain limit, consistent with the following reference (Reference: Section 2.4.2 of WCAP-13510, "Structural Evaluation of the Point Beach Units 1 & 2 Pressurizer Surge Lines, Considering the Effects of Thermal Stratification," October 1992, ADAMS Accession No. ML20198D998).