



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 29, 2018

Mr. Daniel G. Stoddard
Senior Vice President and
Chief Nuclear Officer
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: SURRY POWER STATION, UNITS 1 AND 2 – REVISED LICENSE RENEWAL
COMMITMENT PRESSURIZER SURGE LINE WELD INSPECTION
FREQUENCY (EPID L-2017-LRO-0078)

Dear Mr. Stoddard:

By letter dated November 20, 2017, as supplemented by letter dated February 5, 2018, Virginia Electric and Power Company (Dominion Energy Virginia, Dominion, or the licensee) submitted a document titled "Revised License Renewal Commitment Pressurizer Surge Line Weld Inspection Frequency," for Surry Power Station (Surry), Units 1 and 2, to the U.S. Nuclear Regulatory Commission (NRC), for review and approval.

As stated in the November 20, 2017, submittal, Dominion requested approval to revise the inspection frequency of Surry Units 1 and 2, pressurizer surge line welds from once every 40 months, to once every 10 years. Dominion stated that its proposed inspection interval is applicable to both the first license renewal period as well as subsequent license renewal.

A copy of the related Safety Evaluation is enclosed.

If you have any questions, please contact me at (301) 415-1438, or via email at Karen.Cotton@nrc.gov.

Sincerely,

Handwritten signature of Karen Cotton in cursive script.

Karen Cotton, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-280 and 50-281

cc: Listserv



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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

VIRGINIA ELECTRIC AND POWER COMPANY

SURRY POWER STATION UNITS 1 AND 2

REVISED LICENSE RENEWAL COMMITMENT

PRESSURIZER SURGE LINE WELD INSPECTION FREQUENCY

1.0 INTRODUCTION

By letter dated November 20, 2017, as supplemented by letter dated February 5, 2018 (Agency Documents Access and Management System (ADAMS) Accession Nos. ML17339A170 and ML18040A461), Virginia Electric and Power Company (Dominion Energy Virginia, Dominion, or the licensee) submitted a document titled "Revised License Renewal Commitment Pressurizer Surge Line Weld Inspection Frequency," for Surry Power Station (Surry), Units 1 and 2, to the U.S. Nuclear Regulatory Commission (NRC), for review and approval. The licensee had previously submitted its "Pressurizer Surge Line Weld Inspection Plan Summary," to the NRC by letter dated May 14, 2007 (ADAMS Accession No. ML071350356). Dominion's May 14, 2007, submittal met its license renewal commitment, documented in NUREG-1766, "Safety Evaluation Report Related to the License Renewal North Anna Power Station Units 1 and 2, and Surry Power Station, Units 1 and 2" (ADAMS Accession No. ML030160853), December 2002. Specifically, in its May 14, 2007 submittal Dominion stated that it would perform baseline volumetric and surface examinations of the pressurizer surge line welds at Surry, Units 1 and 2, prior to entry into the period of extended operation (PEO), and once every 40 months thereafter.

As stated in the licensee's submittal dated November 20, 2017, Dominion requested approval to revise the inspection frequency of Surry, Units 1 and 2, pressurizer surge line welds from once every 40 months, to once every 10 years. Dominion stated that its proposed inspection interval is applicable to both the first license renewal period as well as subsequent license renewal.

2.0 REGULATORY EVALUATION

By letter dated May 29, 2001 (ADAMS Accession No. ML011500496), Dominion submitted a license renewal application for Surry, Units 1 and 2. Title 10 of the *Code of Federal Regulations* (10 CFR) Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," addresses the requirements for plant license renewal. Pursuant to 10 CFR 54.21, each application for license renewal must contain an integrated plant assessment (IPA) and an

Enclosure

evaluation of time limited aging analyses (TLAAs). The plant-specific IPA shall identify and list those structures and components subject to an aging management review and demonstrate that the effects of aging (e.g., cracking, loss of material, loss of fracture toughness, dimensional changes, and loss of preload) will be adequately managed so that their intended functions will be maintained consistent with the current licensing basis (CLB) for the PEO as required by 10 CFR 54.21(a)(3). In addition, 10 CFR 54.21(d) requires that the final safety analysis report (FSAR) supplement for the facility, must contain a summary description of programs and activities for managing the effects of aging and TLAAs for the PEO.

On March 20, 2003 (ADAMS Accession No. ML030710581), NRC issued renewed facility operating licenses to Surry Units 1 and 2. The technical basis for NRC staff's review and issuance of the renewed operating facility licenses was documented by NUREG-1766. As stated earlier, NUREG-1766 also documented the licensee's commitment regarding future activities to be completed by the licensee, related to the aging management of Surry, Units 1 and 2, pressurizer surge line welds.

Pursuant to 10 CFR 54.21(d), Dominion's most recent Updated Final Safety Analysis Report (UFSAR) Section 18.3.2.4, and Table 18-1, (Item 24) for Surry, Units 1 and 2, summarizes licensee's current inspection frequency of Surry, Units 1 and 2 pressurizer surge line welds.

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request and the NRC to review and approve the licensee's revised inspection frequency for the Surry Units 1 and 2, pressurizer surge line welds. The scope of this review is limited to Surry, Units 1 and 2, revision of the inspection frequency of Dominion's previously submitted aging management program for the pressurizer surge line welds, applicable to the PEO.

TECHNICAL EVALUATION

3.1 Summary of Submittal Information

By letter dated May 14, 2007, as part of its license renewal commitments, Dominion provided the NRC its inspection plan summary to inspect the pressurizer surge line welds once every 40 months for each of Surry, Units 1 and 2. In its current submittal, Dominion stated that in 2007 when it submitted its inspection plan summary, the "once every 40 months" inspection frequency was selected because no guidance was available at the time. Dominion further stated that in 2012, Florida Power and Light (FPL) proposed using an inspection frequency of 120 months for its pressurizer surge nozzle welds, based on use of American Society Of Mechanical Engineers Boiler and Pressure Vessel Code (ASME), Section X, Appendix L, "Operating Plant Fatigue Assessment," for Turkey Point Units 3 and 4 (ADAMS Accession No. ML12152A156). The NRC approved FPL's inspection program by letter dated May 29, 2013 (ADAMS Accession No. ML1314A595). Dominion further noted a similar submittal dated October 29, 2015, for St. Lucie Units 1 and 2 (ADAMS Accession No. ML15314A160), was approved by the NRC on October 13, 2016 (ADAMS Accession No. ML16235A138). The licensee stated that it performed a flaw evaluation for the Surry pressurizer surge line welds using the 2004 Edition of ASME Section XI, Appendix L. These evaluations assumed a postulated flaw and used a bounding stress, which demonstrated that the crack growth for a postulated circumferential flaw reached the allowable flaw size after an operating period of 47 years. Dominion included the Surry Unit 1 and 2, proprietary technical report as Attachment 1. Dominion also included a redacted version as attachment 2 (ADAMS Accession No. ML17339A175).

The licensee stated that upon receipt of NRC's approval, the Surry UFSAR will be revised to reflect the new inspection frequency for Surry Units 1 and 2 pressurizer surge line welds. The scheduling of the welds will be based upon the date of completion of the last weld inspection not to exceed 10 years. The licensee further stated that the proposed inspection frequency for the Surry Units 1 and 2, pressurizer surge line weld is applicable to both the first license renewal period (i.e., PEO), as well as subsequent license renewal. As noted earlier, this review is applicable to the PEO. If and when Dominion submits a subsequent license renewal application for Surry Units 1 and 2, the staff will review the program as part of its subsequent license renewal review.

3.2 NRC Staff Technical Evaluation

The staff reviewed Surry, Units 1 and 2, Revised License Renewal Commitment Pressurizer Surge Line Weld Inspection Frequency, to determine if the inspection frequency would be adequate in managing the effects of aging so that the components' intended functions would be maintained consistent with the CLB during the PEO, in accordance with 10 CFR 54.21(a)(3). The staff notes that all ASME Code, Section XI, Inservice Inspection (ISI) and 10 CFR 50.55a requirements continue to apply during the term of a renewed license, unless a relief request is submitted by the licensee and subsequently approved by NRC staff in accordance with 10 CFR 50.55a. The staff noted that the proposed inspection frequency (i.e., once every 10 years) for surface and volumetric examinations is consistent with the ASME Code, Section XI, examinations for reactor coolant piping.

During its review, the NRC staff noted that the licensee performed the flaw evaluation for the Surry pressurizer surge line welds using the 2004 Edition of ASME Section XI, Appendix L, "Operating Plant Fatigue Assessment." The staff further noted that the latest ASME Code edition endorsed by reference in 10 CFR 50.55a, is the 2013 Edition of ASME Section XI, and includes Appendix L without any conditions. Additionally, the licensee confirmed that had it used the 2013 Edition of Appendix L, the inspection frequency would not change.

As part of its the review the NRC staff verified that the values for the material properties, dimensions, design temperatures, thermal transients, and pressures used for the Surry pressurizer surge line flaw tolerance evaluation matched the UFSAR provided values for the two units. The NRC staff also verified that the licensee completed baseline examinations for Surry Units 1 and 2 (November 2007 and May 2008, respectively). Those examinations confirmed that there were no recordable indications present on the pressurizer surge line welds.

Based on the above, the NRC staff confirmed that the revised inspection frequency would provide an acceptable level of safety. This was, in part, because the projected growth rate for a postulated crack to challenge the leak tightness of the pressurizer surge line exceeds 47 years of operation. The 10-year inspection interval proposed by the licensee provides reasonable assurance that indications, if they are present, will be detected before they become unacceptable indications. Therefore, the staff concludes that Dominion has demonstrated that the effects of aging for the Surry Units 1 and 2 pressurizer surge line welds will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the PEO, as required by 10 CFR 54.21(a)(3).

4.0 CONCLUSION

The NRC staff reviewed Surry, Units 1 and 2, Revised License Renewal Commitment Pressurizer Surge Line Weld Inspection Frequency. Based on its review, the staff concludes that there is reasonable assurance that the license will manage the aging effects of the pressurizer surge line welds for Surry, Units 1 and 2 through the implementation of the revised proposed inspection frequency. Therefore, the NRC staff approves the licensee's request to extend the inspection interval from 40 months to 10 years, Surry Units 1 and 2, the licensee may inspect these welds based upon the date of completion of the last weld inspection not to exceed 10 years during the PEO.

Principal Contributor: Roger Kalikian

Date: June 29, 2018

D. Stoddard

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COMMITMENT PRESSURIZER SURGE LINE WELD INSPECTION
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