

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

September 27, 2001

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Serial No.: 01-514
LR/DEA R0
Docket Nos.: 50-280/281
50-338/339
License Nos.: DPR-32/37
NPF-4/7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
SURRY AND NORTH ANNA POWER STATIONS UNITS 1 AND 2
REQUEST FOR ADDITIONAL INFORMATION
LICENSE RENEWAL APPLICATIONS

In an August 8, 2001 letter, the NRC requested additional information regarding the license renewal applications (LRAs) for Surry and North Anna Power Stations. The attachment to this letter contains the responses to the Requests for Additional Information (RAIs) associated with Sections 2.5 and B.2.1.1 of the LRA.

Should you have any questions regarding this submittal, please contact Mr. J. E. Wroniewicz at (804) 273-2186.

Very truly yours,



David A. Christian
Senior Vice President – Nuclear Operations and Chief Nuclear Officer

Attachment

Commitments made in this letter: None

A001

SN: 01-514
Docket Numbers: 50-280/281
50-338/339
Subject: Lic. Renewal
RAI

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing responses to requests for additional information supporting the applications for renewal of the operating licenses for Surry, Units 1 and 2, and North Anna, Units 1 and 2, were acknowledged before me, in and for the County and Commonwealth aforesaid, today by David A. Christian who is Senior Vice President - Nuclear Operations and Chief Nuclear Officer of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing documents in behalf of that Company, and that the statements in the documents are true to the best of his knowledge and belief.

Acknowledged before me this 27th day of September, 2001.

My Commission Expires: 3-31-04.

Maggie McClure
Notary Public

(SEAL)

cc:

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Attachment

**License Renewal – Response to RAI
Serial No. 01-514**

**Response to Request for Additional Information
Dated August 8, 2001
Surry and North Anna Power Stations, Units 1 and 2
License Renewal Applications
Sections 2.5 and B2.1.1**

**Virginia Electric and Power Company
(Dominion)**

Section 2.5, Electrical and Instrumentation and Controls System Scoping and Screening Results

RAI 2.5-1:

The screening results in both license renewal application (LRA) for Section 2.5 do not include any electrical components listed in NEI 95-10 (Appendix B) and the Standard Review Plan (Table 2.1-5) associated with the offsite power system. These are components such as switchyard bus, transmission conductors, switchyard insulators and transmission line insulators. 10 CFR 54.4(a)(3) requires that all systems, structures, and components (SSCs) relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulation for station blackout (10 CFR 50.63) be included within the scope of Part 54. In 10 CFR 50.63 it's required that each light-water-cooled nuclear power plant licensed to operate be able to withstand and recover from a station blackout of a specified duration that is based upon factors that include the expected frequency of loss of offsite power and the probable time needed to recover offsite power. At North Anna and Surry the specified duration was determined based upon evaluations that followed the guidance in NRC Regulatory Guide 1.155 and NUMARC 87-00, and included the plants' offsite power characteristics. These characteristics helped determine the probable time needed to recover offsite power (coping duration). The resulting four hour coping duration at North Anna and Surry is, therefore, based on the likelihood of recovering offsite power within four hours following its loss. Therefore, identify where in the LRA these Station Blackout SSCs are included within the scope of license renewal, or provide a technical justification for excluding the Station Blackout SSCs from the screening results.

Dominion Response:

A review of the station blackout (SBO) licensing correspondence, including the original Safety Evaluation Report (SER) and subsequent Supplemental SERs, has shown that Dominion has evaluated North Anna and Surry Power Stations against the requirements of the SBO rule using the guidance for NUMARC 87-00, except where RG 1.155 takes precedence. Table 1 of RG 1.155 notes where the regulatory guide takes precedence over NUMARC 87-00. NUMARC 87-00, Section 2.4.1, "Assumptions," Item (1), states that the event, (i.e., SBO) ends when ac power is restored to shutdown buses from any source, including alternate ac (AAC). The coping durations for both North Anna and Surry have been determined using NUMARC 87-00, Section 3. Section 3, Table 3-8 has three inputs for determining the required coping duration: the Off-site Power Group, the Emergency AC (EAC) Group, and Allowed EDG Target Reliability. The determination of the Offsite Power Group includes the reliability of the switchyard and the transmission system. However, the methodology used for determining the Offsite Power Group doesn't rely on a component level analysis but instead inputs plant weather, grid, and switchyard features. Plant weather exposure and the "reliability" of the offsite power system has been evaluated in providing input to Table 3-8, which is used to determine coping duration.

Procedures for ac power restorations follow the guidance of NUMARC 87-00, Section 4.2.2. Section 4.2.1 also states that ac power may be restored from either the preferred (off-site) or a standby (Class 1E) power source. If an AAC power source is available, it may also be used to restore power. The AAC diesel generators at both stations can be run past the 4-hour coping period to restore power. Existing operating procedures ensure that the AAC diesels at each station can operate and supply power until either the emergency diesel generators (EDGs) or off-site power is restored. On-site supplies of fuel oil independent of the EDGs' fuel oil supplies are available at both stations to ensure continued AAC diesel operation. Neither North Anna nor Surry relies on offsite power to recover from an SBO event, as described in NUMARC 87-00

North Anna Transfer Buses D, E, and F and Surry Transfer Buses D and E are located inside the normal switchgear rooms of each plant and are the common points where the preferred, standby, and AAC sources are available to restore power to the safe shutdown buses after an SBO. The AAC source and the emergency diesel generators are relied on to recover from an SBO event. The non-safety transfer buses, the AAC source (AAC diesel generator and its supporting systems), and the emergency diesel generators are in the scope of license renewal for compliance with SBO requirements. The non-safety and non-QA SSCs that comprise the switchyard and transmission system are not in the scope of license renewal because they are not required to perform the intended functions for compliance with 10 CFR 50.63 (SBO).

RAI 2.5-2:

The cables and connectors have been evaluated as commodities across system boundaries using the spaces approach. In both LRAs, Section 2.5.2, the applicant states that the evaluation boundary generally includes all cables and connectors in these areas to provide the complete coverage of cables and connectors in the scope of license renewal. The word "generally" is a concern in this statement. Identify any cables and connectors located within these spaces that have been excluded from the scope of license renewal and identify the technical basis for the exclusion.

Dominion Response:

The evaluation boundaries for cables and connectors have been established to include all areas that contain components supporting License Renewal intended functions. Cables and connectors in these areas supporting in-scope systems and components are in the scope of license renewal. To ensure the complete coverage of cables and connectors supporting intended functions, all the cables in these areas have been evaluated, with the following exceptions:

1. **Control Rod Drive Mechanism (CRDM) Cables** – Loss of the CRDM cables would neither impede nor prevent the performance of the control rod safety function. The CRDM cables are not required to support intended functions meeting the criteria in 10 CFR 54.4(a).
2. **Bare Grounding Conductors** – Bare grounding conductors are not scheduled or uniquely identified in the Equipment Data System (EDS). They are a part of the in-scope electrical power (EP) system. The bare grounding cables are used to construct the station ground grid and bond metal raceways, building structural steel, and plant equipment to earth ground. Bare grounding conductors provide personnel safety protection by interconnecting plant areas and equipment to minimize potential gradients (voltage differences) between these areas during electrical power system ground fault conditions. Bare grounding conductors are not required to support the intended functions meeting the 10 CFR 54.4(a) criteria.

Section B2.1.1 Buried Piping and Valve Inspection Activities

RAI B2.1.1-1:

The applicant is requested to provide the following information regarding the scope of the Buried Piping and Valve Inspection Activities:

Scoping - In the SPS LRA, page B-9, the applicant states that SPS 1 and 2 utilizes buried copper-nickel pipe. Explain why this material is not included as one of the representative samples for the material/burial condition combinations provided on Page B-8.

Dominion Response:

The absence of copper-nickel material from the scope statement on page B-8 was an administrative error. Copper-nickel (uncoated) is a material/burial condition combination that is included within the scope of the Buried Piping and Valve Inspection Activity.

RAI B2.1.1-2:

The applicant is requested to provide the following information regarding the scope of the Buried Piping and Valve Inspection Activities:

Detection of Aging Effects - Identify the grade of copper-nickel material used in buried component applications at Surry and verify that this grade of copper-nickel material is not susceptible to changes in material properties (such as selective leaching) when exposed to underground conditions.

Dominion Response:

A 90/10 alloy of copper-nickel is used as buried piping at Surry. Operating experience confirms that the 90/10 alloy is much less susceptible to selective leaching than is the aluminum-bronze alloy.

RAI B2.1.1-3:

The applicant is requested to provide the following information regarding the scope of the Buried Piping and Valve Inspection Activities:

Operating Experience - The applicant states that significant external degradation of buried piping due to effects of aging requiring aging management has not been found. This statement is based on the experience that has been gained through the Work Control Process with respect to buried fire protection piping (all four units) and service water system piping (NAS 1 and 2). Please describe the operating experience for all four units, including any failure of buried components due to aging or failure of coating material. Include the means by which the aging or coating failure was detected and any corrective actions taken to prevent future aging/failures.

Dominion Response:

Maintenance activities for buried carbon steel (including cast iron) piping and valves have involved principally fire protection components at both the Surry and North Anna Power Stations. The service water system at North Anna also includes buried carbon steel components, which are coated or wrapped similarly to fire protection components to prevent water intrusion that could lead to loss of material from the metallic surfaces. Maintenance activities for buried components predominantly involve the excavation of valves, however, visual inspections of the internal and external surfaces of adjacent piping are also performed. These tasks occur at an average frequency of three times per year at both Surry and North Anna, and provide the opportunity to examine the integrity of coatings/wraps on the valves and adjacent piping. A review of Operating Experience has identified failure of buried piping; however, these failures were not attributable to aging or failure of coating material.