

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

January 31, 2020

10 CFR 50.90

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Serial No.: 20-015
NRA/GDM: R0
Docket Nos.: 50-280/281
License Nos.: DPR-32/37

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
PROPOSED LICENSE AMENDMENT REQUEST
ALLOWED OUTAGE TIME EXTENSION FOR REPLACEMENT OF RESERVE
STATION SERVICE TRANSFORMER C 5KV CABLES TO TRANSFER BUS F
RESPONSE TO REQUEST FOR CLARIFICATION AND ADDITIONAL INFORMATION

By letter dated October 30, 2019 (ADAMS Accession No. ML19309D199), Virginia Electric and Power Company (Dominion Energy Virginia) requested a license amendment to revise the Surry Power Station (Surry) Units 1 and 2 Technical Specification (TS) 3.16 "Emergency Power System." The license amendment request (LAR) would allow a one-time extension of the Allowed Outage Time (AOT) in TS 3.16, Action B.2, from 7 days to 14 days to allow replacement of the 5 kilo-volt (KV) cables from Reserve Station Service Transformer C (RSST C) to Transfer Bus F during the Surry Unit 2 spring 2020 refueling outage (RFO).

In an email dated January 9, 2020 from Mr. Vaughn Thomas, the Surry NRC Project Manager, to Mr. Gary D. Miller of Dominion Energy Virginia, the NRC staff requested additional information to facilitate their review of the subject LAR. The NRC's request and Dominion Energy Virginia's response are provided in the attachment.

NRC Requested Clarification

In addition to the request for additional information, the NRC asked for clarification of the LAR scope as follows:

"In the LAR, the licensee stated, "To facilitate the replacement of the RSST C 5 kV cables to Transfer Bus F, RSST C must be removed from service. Thus, the electrical configuration of the plant for this modification is the same as it was for the RSST C replacement completed during the Unit 2 fall 2018 RFO. A temporary 21-day AOT for the RSST C replacement was approved by the NRC in TS Amendments 293/293 dated October 5, 2018."

The TS Amendments 293/293 dated October 5, 2018 (ML18621A099) was meant both for replacement of RSST C and associated cabling. Please clarify whether or not the replacement of associated cabling was completed during previous Unit 2 fall 2018 RFO, and whether the replacement of cables proposed in this LAR are different from those mentioned in previous amendment."

The RSST C cabling discussed in the current LAR is the same cabling that was previously approved for replacement during the Unit 2 fall 2018 RFO by Surry Units 1 and 2 TS Amendments 293/293. However, the cable was not able to be replaced as planned. The cable replacement design change was awarded to an engineering firm with the intent to use a specific insulated bus (tubular bus) product to eliminate a known failure mechanism, i.e., excessive mechanical forces on the cable shield. During the owner's review of the provided design change, it was identified that the proposed insulated bus design tolerances did not meet the Surry design specification requirements. Specifically, the proposed insulated bus was considered more robust but was unable to meet the existing GDC-17 reactance requirement. Therefore, the cable could not be replaced as planned during the previously approved 21-day AOT for the Surry Unit 2 fall 2018 RFO, and an alternate design solution was necessary. An improved cable design has since been completed and the cable procured for installation. The cables are now larger to meet the GDC-17 reactance criterion and to account for cable deration and have a higher temperature rating than the existing cables. Consequently, the additional AOT extension requested by this LAR will provide sufficient time to perform the cable replacement work during the upcoming Unit 2 spring 2020 RFO.

Should you have any questions or require additional information, please contact Mr. Gary D. Miller at (804) 273-2771.

Respectfully,



Mark D. Sartain
Vice President – Nuclear Engineering and Fleet Support

Commitments contained in this letter: None

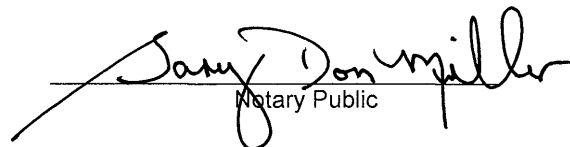
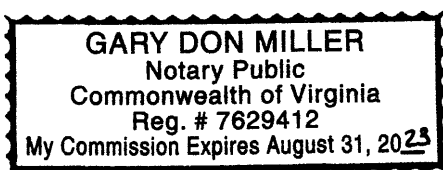
Attachment: Response to NRC Request for Additional Information

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Mr. Mark D. Sartain, who is Vice President – Nuclear Engineering and Fleet Support, of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 31st day of January, 2020.

My Commission Expires: August 31, 2023


Notary Public

cc: U.S. Nuclear Regulatory Commission - Region II
Marquis One Tower
245 Peachtree Center Avenue, NE Suite 1200
Atlanta, GA 30303-1257

State Health Commissioner
Virginia Department of Health
James Madison Building – 7th floor
109 Governor Street
Suite 730
Richmond, VA 23219

Mr. Vaughn Thomas
NRC Project Manager – Surry
U.S. Nuclear Regulatory Commission
One White Flint North
Mail Stop 04 F-12
11555 Rockville Pike
Rockville, MD 20852-2738

Mr. G. Edward Miller
NRC Senior Project Manager – North Anna
U.S. Nuclear Regulatory Commission
One White Flint North
Mail Stop 09 E-3
11555 Rockville Pike
Rockville, MD 20852-2738

NRC Senior Resident Inspector
Surry Power Station

Attachment

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION

**Virginia Electric and Power Company
(Dominion Energy Virginia)
Surry Power Station Units 1 and 2**

**REQUEST FOR ADDITIONAL INFORMATION
REGARDING ONE-TIME 14-DAY ALLOWED OUTAGE TIME
FOR REPLACEMENT OF 5 KV CABLES ASSOCIATED WITH
RESERVE STATION SERVICE TRANSFORMER C**

SURRY POWER STATION UNITS 1 AND 2

NRC Comment:

By application dated October 30, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19309D199, Virginia Electric and Power Company (Dominion Energy Virginia) (the licensee) requested a license amendment to revise the Surry Power Station (Surry) Units 1 and 2 Technical Specification (TS) 3.16 "Emergency Power System." Specifically, the license amendment request (LAR) would allow a one-time extension of the Allowed Outage Time (AOT) in TS 3.16, Action B.2, from 7 days to 14 days. The licensee requested a temporary 14-day AOT to allow replacement of the 5 kilo-Volt (KV) cables from Reserve Station Service Transformer C (RSST C) to Transfer Bus F during the Surry Unit 2 spring 2020 refueling outage (RFO). The RSST C 5 KV cables provide distribution of reliable offsite power from RSST C to Transfer Bus F, which supplies the 1H and 2J emergency buses. The RSST C and associated cables to Transfer Bus F provide offsite power to both units. Therefore, the TS change request applies to both units.

The NRC staff has identified the need for the following additional information to complete the review of the LAR:

Applicable Regulatory Requirements

Title 10 of the Code of Federal Regulations (10 CFR) Part 50.36(c)(2) provides the requirement for the establishment of TS limiting conditions for operation (LCO). Specifically, paragraph 50.36(c)(2)(ii) requires that a TS LCO of a nuclear reactor be established for each item meeting one or more of the criteria listed. For this LAR, Criterion 3 is applicable and states: "A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a DBA or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier."

Request for Additional Information (RAI)

RAI # 1

In the LAR, Attachment 1, Page 9, the licensee stated that during the temporary 14-day AOT, the one-time operating restrictions will be as follows: (1) Two Unit Load Shed Circuit (LSR1) will be defeated, and (2) Auto Start Blocking Circuit (LSR2) will be in operation.

Please provide a detailed description of the functions of the (1) Two Unit Load Shed Circuit (LSR1), and (2) Auto Start Blocking Circuit (LSR2). Also, explain why the operating restrictions on these circuits are considered necessary during the temporary 14-day AOT.

Dominion Energy Virginia Response

The response to the NRC request for additional information is provided below.

- Detailed description of the functions of the (1) Two Unit Load Shed Circuit (LSR1).

The primary concern in the plant load shed design is overload of the RSST and transfer bus electrical distribution system. If a breaker (15A2, 15B2, or 15C2) from a Station Service Transformer (SST) to the normal station service unit bus trips automatically, an automatic transfer to the RSSTs occurs if no fault exists on the normal station service bus. The automatic transfer is accomplished by closure of Breakers 15A1, 15B1, or 15C1. (See Figure 1.) The affected normal station service bus is then supplied from the RSST through the transfer bus. The transfer bus continues to connect the RSST to the emergency buses to ensure continuous service for the safety-related equipment.

During the automatic transfer, voltage transients and bus overloading may occur. This is particularly true in the event of two-unit loading on the transfer buses. The load shed scheme reduces the electrical loading on RSS Transfer Buses D, E and F during events that necessitate two-unit simultaneous loading on an individual transfer bus. Per the Surry UFSAR (Chapter 8, Section 4.1), "To include the possibility of two-unit simultaneous loading of the reserve station service (RSS) system, within its design capability, a load shedding system is installed to remove the overloads on the RSS system. This system provides for automatic load shedding of selected non-safety-related loads from both units which limits RSST loading to under 4000A per transformer...". Sensing relays detect when both units' station service feeder breakers from an RSS transfer bus are closed. The actuating relays then send tripping signals to specific loads. The tripping signal trips specified running equipment and defeats the auto-start capability of non-running equipment.

- Detailed description of the functions of the (2) Auto Start Blocking Circuit (LSR2).

To alleviate potential low-voltage profile conditions of the Vital and Emergency Electrical Distribution System during a Safety Injection (SI) or Consequence Limiting Safeguards (CLS) actuation, an automatic start inhibit or blocking circuit is installed. When initiated, the auto-start blocking circuit sends signals to specific pieces of equipment based on the position of the associated bus feeder and defeats the auto-start capability of non-running equipment. The auto-start block circuit ensures sufficient power supply capacity and voltage levels for emergency equipment. Per the Surry UFSAR (Chapter 8, Section 4.1), "The automatic starting of selected large non-Class 1E loads is blocked. The loads that

are prevented from auto starting are the condensate, bearing cooling, and component cooling pump motors. The auto-start block will remain in effect for 60 seconds following an SI signal and 315 seconds following a CLS signal. This feature will prevent any voltage degradation of the emergency buses as a result of starting of the non-Class 1E loads...".

Explain why the operating restrictions on these circuits are considered necessary during the temporary 14-day AOT.

The auto-start inhibit or blocking function described in the Surry UFSAR will function as intended, i.e., there are no new operating restrictions being imposed on this function. The Two Unit Load Shed Circuit is conservatively defeated during the 14-day AOT to avoid any inadvertent actuation of the circuitry while performing cabling installation at the transformer and the "F" transfer bus. This action is appropriate because the logic circuit for load shed is partially made-up when the shutdown unit is on the dependable alternate source (backfeed), which will be the case when the cable replacement is performed. With the refueling unit on backfeed, the refueling unit having reduced load, and RSST C out of service, there is no need for the load shed.

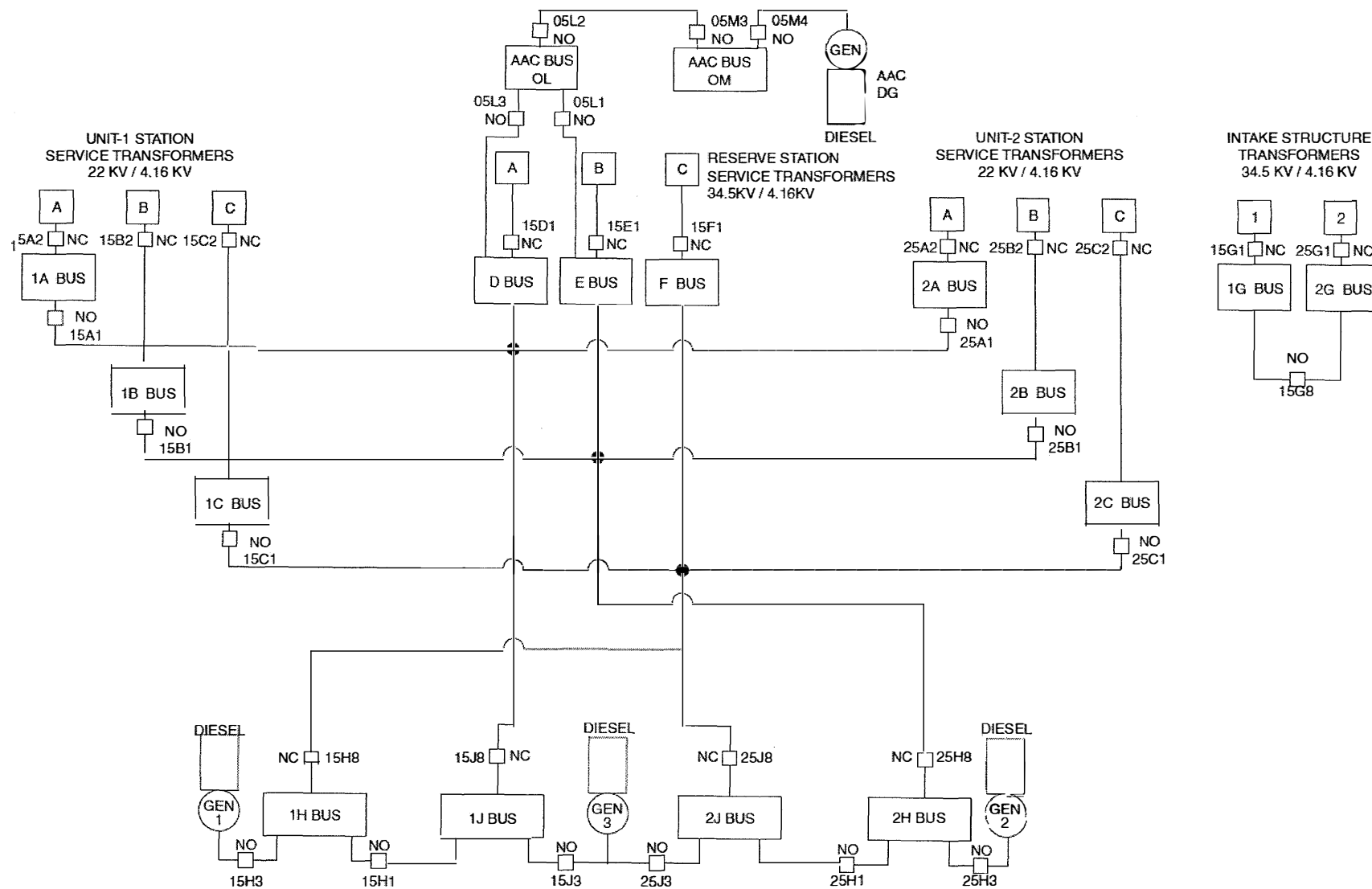


Figure 1