VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

September 16, 2019

10 CFR 50
10 CFR 51
10 CFR 54

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Serial No.: 19-367
NRA/DEA: R1
Docket Nos.: 50-280
50-281
License Nos.: DPR-32
DPR-37

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
SUBSEQUENT LICENSE RENEWAL APPLICATION
RESPONSE TO NRC REQUESTS FOR CONFIRMATION OF INFORMATION SET 2

References:

1. Letter from Virginia Electric and Power Company to the US Nuclear Regulatory Commission dated October 15, 2018 (Serial No. 18-340), "Virginia Electric and Power Company, Surry Power Station Units 1 and 2, Application for Subsequent Renewed Operating Licenses," [Agencywide Documents Access and Management System (ADAMS) Accession No. ML18291A842]

2. Email from Emmanuel Sayoc of the US Nuclear Regulatory Commission to Daniel G. Stoddard of Virginia Electric and Power Company dated August 20, 2019, "Requests for Confirmation of Information for the Safety Review of the Surry Power Station, Units 1 and 2 Subsequent License Renewal Application (L-2018-RNW-0023/000951) – (Attachment 4D)"

In Reference 1, Virginia Electric and Power Company (Dominion Energy Virginia) submitted the Subsequent License Renewal Application (SLRA) for Surry Power Station (SPS) Units 1 and 2. In Reference 2, the NRC provided requests for confirmation of information (RCIs) the staff will likely use in the conclusions documented in their Safety Evaluation Report (SER) for the SLRA, but which has not been previously docketed. Dominion Energy Virginia's response to each RCI is provided in Enclosure 1 and the SLRA mark-ups are provided in Enclosure 2.

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NRR

If you have any questions or require additional information, please contact Mr. Paul Aitken at (804) 273-2818.

Sincerely,

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

Commitments made in this letter: None

Enclosures:

1. Response to Requests for Confirmation of Information - Set 2 - Regarding SPS SLRA
2. SLRA Mark-ups - Set 2 RCIs

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by 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 16th day of September, 2019.

My Commission Expires: August 31, 2023

GARY DON MILLER
Notary Public
Commonwealth of Virginia
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My Commission Expires August 31, 2023

Notary Public

cc: (w/o Enclosures except *)

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Serial No.: 19-367
Docket Nos.: 50-280/281

Enclosure 1

RESPONSE TO NRC REQUESTS FOR CONFIRMATION OF INFORMATION SET 2 REGARDING SPS SLRA

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

Response to NRC Requests for Confirmation of Information Set 2

Subsequent License Renewal Application Surry Power Station Units 1 and 2

By letter dated October 15, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18291A842), as supplemented by letters dated January 29, 2019 (ADAMS Accession No. ML19042A137), and April 2, 2019 (ADAMS Accession No. ML19095A666), Virginia Electric and Power Company (Dominion Energy Virginia or Dominion) submitted an application for the subsequent license renewal of Renewed Facility Operating License Nos. DPR-32 and DPR-37 for Surry Power Station (SPS) Units 1 and 2, respectively.

Between February 4 and April 25, 2019, the U.S. Nuclear Regulatory Commission (NRC) staff conducted audits of Dominion records to confirm information submitted in the SPS Subsequent License Renewal Application (SLRA). During the audits, the staff reviewed several documents that contain information that will likely be used in conclusions documented in the Safety Evaluation Report (SER), but which has not been previously submitted to the NRC on the docket. Any information used to reach a conclusion in the SER must be included on the docket by the applicant.

Therefore, in an email dated August 20, 2019, the NRC staff transmitted two requests for confirmation of information (RCIs) gathered during the audits noted above. The NRC RCIs and Dominion Energy Virginia's confirmation of each RCI are provided below.

REQUESTS FOR CONFIRMATION OF INFORMATION (RCIs)

RCI No. 1:

1. *SLRA Table 3.2.1, item 3.2.1-028; Table 3.3.1, items 3.3.1-043 and 3.3.1-044; and Table 3.4.1, item 3.4.1-023, state that there are no in-scope stainless steel piping or piping components; or steel with stainless steel cladding or stainless steel heat exchanger components exposed to closed-cycle cooling water greater than 60°C (greater than 140°F) in the engineered safety features systems, auxiliary systems, and steam and power conversion systems, respectively. UFSAR Table 9.4-1, "Component Cooling Water Design Data," states that the component cooling water pumps have a design temperature of 180°F and the heat exchangers, surge tanks, and chemical addition tanks have a design temperature of 150°F. UFSAR Table 9.4-1 states that the maximum operating temperature for the component cooling water heat exchangers is 119.7°F. However, it is not clear to the staff that all in-scope stainless steel piping and piping components and steel with stainless steel cladding or stainless steel heat exchanger components exposed to closed-cycle*

cooling water are exposed to temperatures less than 140°F because UFSAR Section 9.4.1.1 states that, "[t]he component cooling water system is designed to reduce the temperature of the reactor coolant to 140°F based on a river water temperature of 100°F." While the UFSAR does not conflict with these AMR items, it could be possible that there are in-scope stainless steel or steel with stainless steel cladding components exposed to temperatures greater than 140°F.

Confirm that there are no in-scope stainless steel piping or piping components or steel with stainless steel cladding or stainless steel heat exchanger components exposed to closed-cycle cooling water greater than 140°F or system conditions greater than 140°F while being exposed to closed-cycle cooling water in the engineered safety features systems, auxiliary systems, and steam and power conversion systems.

Dominion Response:

During operation of the alternate AC diesel generator engine, portions of the alternate AC diesel generator jacket water cooling subsystem are exposed to closed-cycle cooling water >60°C (>140°F). The cooling subsystem contains stainless steel restricting orifices which, therefore, are exposed to closed-cycle cooling water >60°C (>140°F). As a result, the *Closed Treated Water Systems (B2.1.12)* program will manage the aging effect of cracking for the stainless steel restricting orifices.

There are no other stainless steel piping or piping components, steel with stainless steel cladding or stainless steel heat exchanger components exposed to closed-cycle cooling water >60°C (>140°F) that are subject to aging management review in the engineered safety features systems, auxiliary systems, and steam and power conversion systems.

SLRA Changes

SLRA Tables 3.3.1 and 3.3.2-37 and Section 3.3.2.1.37 are supplemented, as shown in Enclosure 2, to reflect aging management of the stainless steel restricting orifices described above.

RCI No. 2:

SLRA Table 3.2.1, item 3.2.1-029 states that there are no in-scope steel piping or piping components exposed to closed-cycle cooling water in the engineered safety features systems. UFSAR Section 9.4.2 states, "[c]arbon steel pipe is used throughout the system." While the UFSAR does not conflict with item 3.2.1-029, it could be possible that there are in-scope steel piping or piping components exposed to closed-cycle cooling water in the engineered safety features systems.

Confirm that there are no in-scope steel piping or piping components exposed to closed-cycle cooling water in the engineered safety features systems.

Dominion Response:

This information has been confirmed to be correct as stated.

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Enclosure 2

SLRA MARK-UPS
SET 2 RCIs

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

3.3.2.1.37 Alternate AC

Materials

The materials of construction for the alternate ac system component types are:

- Aluminum
- Copper Alloy
- Copper Alloy (>15 percent Zn)
- Elastomer
- Glass
- Gray cast iron
- Stainless steel
- Steel
- Steel with internal coating

Environment

The alternate ac system component types are exposed to the following environments:

- Air – dry
- Air – indoor uncontrolled
- Air – outdoor
- Closed-cycle cooling water
- Closed-cycle cooling water >60°C (>140°F)
- Condensation
- Diesel exhaust
- Fuel oil
- Lubricating oil

Table 3.3.1 Summary of Aging Management Programs for Auxiliary Systems Evaluated in Chapter VII of the GALL-SLR Report

Item Number	Component	Aging Effect/Mechanism	Aging Management Program	Further Evaluation Recommended	Discussion
3.3.1-040	Stainless steel piping, piping components exposed to raw water	Loss of material due to pitting, crevice corrosion, MIC; flow blockage due to fouling	AMP XI.M20, Open-Cycle Cooling Water System	No	Consistent with NUREG-2191 with exceptions. Exceptions apply to the NUREG-2191 recommendations for Open-Cycle Cooling Water System (B2.1.11) program implementation. Flow blockage is not an applicable aging effect requiring management for nonsafety-related components that do not support a function of delivering downstream flow, or for strainer elements that are monitored for clogging.
3.3.1-042	Copper alloy, titanium, stainless steel heat exchanger tubes exposed to raw water, raw water (potable), treated water	Cracking due to SCC (titanium only), reduction of heat transfer due to fouling	AMP XI.M20, Open-Cycle Cooling Water System, or AMP XI.M38, Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	No	Consistent with NUREG-2191 with exceptions. Cracking (titanium only) and reduction of heat transfer of copper alloy or titanium heat exchanger tubes exposed to raw water is managed by the Open-Cycle Cooling Water System (B2.1.11) program. Cracking of titanium components other than heat exchanger tubes exposed to treated water is managed by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.25) program. Exceptions apply to the NUREG-2191 recommendations for Open-Cycle Cooling Water System (B2.1.11) program implementation.
3.3.1-043	Stainless steel piping, piping components exposed to closed-cycle cooling water >60°C (>140°F)	Cracking due to SCC	AMP XI.M21A, Closed Treated Water Systems	No	~~Not applicable. SPS has no in-scope stainless steel piping, piping components exposed to closed-cycle cooling water >60°C (>140°F) in the Auxiliary Systems. The associated NUREG-2191 aging items are not used.~~ Consistent with NUREG-2191 with exceptions. Exceptions apply to the NUREG-2191 recommendations for Closed Treated Water Systems (B2.1.12) program implementation.
3.3.1-044	Stainless steel; steel with stainless steel cladding heat exchanger components exposed to closed-cycle cooling water >60°C (>140°F)	Cracking due to SCC	AMP XI.M21A, Closed Treated Water Systems	No	Not applicable. SPS has no in-scope stainless steel or steel with stainless steel cladding heat exchanger components exposed to closed-cycle cooling water >60°C (>140°F) in the Auxiliary Systems. The associated NUREG-2191 aging items are not used.

Table 3.3.2-37 Auxiliary Systems - Alternate AC - Aging Management Evaluation

Component Type	Intended Function(s)	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	Table 1 Item	Notes
Heater housing (jacket water)	PB	Steel	(E) Air – indoor uncontrolled	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.23)	VII.I.A-77	3.3.1-078	A
			(I) Closed-cycle cooling water	Loss of material	Closed Treated Water Systems (B2.1.12)	VII.C2.AP-189	3.3.1-046	B
Heater housing (lubricating oil)	PB	Steel	(E) Air – indoor uncontrolled	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.23)	VII.I.A-77	3.3.1-078	A
			(I) Lubricating oil	Loss of material	Lubricating Oil Analysis (B2.1.26)	VII.H2.AP-131	3.3.1-098	A
					One-Time Inspection (B2.1.20)	VII.H2.AP-131	3.3.1-098	A
Lubricator body	PB	Copper alloy (>15% Zn)	(I) Air – dry	Loss of material	Compressed Air Monitoring (B2.1.14)	VII.D.A-764	3.3.1-235	A
			(E) Air – indoor uncontrolled	None	None	VII.J.AP-144	3.3.1-114	A
Motor casing (air start motor)	PB	Gray cast iron	(I) Air – dry	Loss of material	Compressed Air Monitoring (B2.1.14)	VII.D.A-764	3.3.1-235	A
			(E) Air – indoor uncontrolled	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.23)	VII.I.A-77	3.3.1-078	A
Orifice	PB;RF	Stainless steel	(E) Air – indoor uncontrolled	Cracking	External Surfaces Monitoring of Mechanical Components (B2.1.23)	VII.H2.AP-209b	3.3.1-004	A
				Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.23)	VII.H2.AP-221b	3.3.1-006	A
			(I) Closed-cycle cooling water	Loss of material	Closed Treated Water Systems (B2.1.12)	VII.C2.A-52	3.3.1-049	B
			(I) Closed-cycle cooling water >60°C (>140°F)	Cracking	Closed Treated Water Systems (B2.1.12)	VII.C2.AP-186	3.3.1-043	B