UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

August 12, 2021

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

SUBJECT: SURRY POWER STATION – INTEGRATED INSPECTION REPORT 05000280/2021002 AND 05000281/2021002

Dear Mr. Stoddard:

On June 30, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Surry Power Station. On July 22, 2021, the NRC inspectors discussed the results of this inspection with Mr. Doug Lawrence, Surry Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or the significance or severity of the violation documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement; and the NRC Resident Inspector at Surry Power Station.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; and the NRC Resident Inspector at Surry Power Station.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at http://www.nrc.gov/reading-rm/adams.html and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Stewart N. Bailey, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos. 05000280 and 05000281
License Nos. DPR-32 and DPR-37

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

SUBJECT: SURRY POWER STATION – INTEGRATED INSPECTION REPORT 05000280/2021002 AND 05000281/2021002 DATED AUGUST 12, 2021

DISTRIBUTION:
M. Kowal, RII
S. Price, RII
L. Gibson, RII
RidsNrrPMSurry Resource
RidsNrrDro Resource
Public

ADAMS ACCESSION NUMBER: [*Accession Number*] ML21225A248

X SUNSI Review		X Non-Sensitive ☐ Sensitive		X Publicly Available ☐ Non-Publicly Available	
OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRP	
NAME	LMcKown	BTowne	DJackson	SBailey	
DATE	8/10/2021	8/10/2021	8/9/2021	8/12/2021	

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000280 and 05000281
License Numbers:	DPR-32 and DPR-37
Report Numbers:	05000280/2021002 and 05000281/2021002
Enterprise Identifier:	I-2021-002-0027
Licensee:	Virginia Electric and Power Company
Facility:	Surry Power Station
Location:	Surry, VA
Inspection Dates:	April 1, 2021 to June 30, 2021
Inspectors:	L. McKown, Senior Resident Inspector B. Towne, Resident Inspector A. Butcavage, Reactor Inspector S. Downey, Senior Reactor Inspector B. Kellner, Senior Health Physicist J. Rivera, Health Physicist
Approved By:	Stewart N. Bailey, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Surry Power Station, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to https://www.nrc.gov/reactors/operating/oversight.html for more information.

List of Findings and Violations

Transient Combustibles Stored in Restricted Area			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000280/2021002-01 Open/Closed	[P.3] - Resolution	71152
NRC inspectors identified a finding of very low safety significance (Green) and an associated non-cited violation (NCV) of License Condition 3.l, Fire Protection, associated with Dominion Energy's failure to implement and maintain in effect the provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report (UFSAR), which resulted in transient combustible conditions adverse to fire protection including storage within a restricted or combustion free zone.			

Additional Tracking Items

None.

PLANT STATUS

Unit 1 began the inspection period at rated thermal power. On April 13, 2021, Unit 1 began coast down from rated thermal power to 80 percent and performed shut down, on April 25, 2021, for entry into a scheduled refueling outage. On May 31, 2021, Unit 1 achieved criticality following the outage returning to rated thermal power on June 4, 2021.

Unit 2 operated at or near rated thermal power for the entire inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards. Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), resident and regional inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week, increasing the amount of time on site as local COVID-19 conditions permitted. As part of their onsite activities, resident inspectors conducted plant status activities as described in IMC 2515, Appendix D; observed risk significant activities; and completed on site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (2 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

(1) Unit 1 containment closure alignment on April 27, 2021.
(2) Unit 1 inside recirculation spray partial system alignment on May 12, 2021.

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

(1) Unit 1 residual heat removal system alignment during refueling operations on May 20, 2021.

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

(1) Unit 1 emergency switchgear room, on April 1, 2021.
(2) #1 emergency diesel generator (EDG) room during maintenance window, on May 5, 2021.
(3) Unit 1 safeguards building all levels, on May 6, 2021.
(4) Auxiliary Building, 13' elevation, on May 10, 2021.
(5) Unit 1 containment all levels, on May 24, 2021.

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 03.01) (2 Samples)

The inspectors evaluated internal flooding mitigation protections in the:

(1) Unit 1 turbine building associated with service water to bearing cooling and recirculation spray piping degradation at isolation valves 1-SW-MOV-103B, 101C, and 101D, on May 12, 2021.
(2) Unit 1 turbine building following an uncontrolled water event from a fire sprinkler pipe during maintenance which sprayed down in the vicinity of the condensate pumps on June 1, 2021.

71111.08P - Inservice Inspection Activities (PWR)

PWR Inservice Inspection Activities Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated pressurized-water reactor non-destructive testing by reviewing the following examinations from May 3 to June 18, 2021:
    1. Eddy Current Examination
        a. Steam Generator C - ET for tubes R6C61, R7C56, R9C61, R10C56, R10C59, R10C60
    2. Liquid Penetrant Examination
        a. Weld 1-05A, Valve to pipe weld, ASME Class 1. This included a review of associated welding activities.
        b. Weld 1-06A, Valve to pipe weld, ASME Class 1. This included a review of associated welding activities.
    3. Magnetic Particle Examination
        a. Weld 1-01, Reactor Pressure Vessel (RPV) head to flange weld, ASME Class 1
        b. Weld 2-10, Nozzle to vessel weld, ASME Class 2
    4. Ultrasonic Examination
        a. Weld 1-A02, RHR heat exchanger circumferential shell weld, ASME Class 2
        b. Weld 2-10, Nozzle to vessel weld, ASME Class 2
        c. Weld CRD-54, Control rod drive housing weld, ASME Class 1

5. Visual Examination
    a. Bare metal visual examination of RPV head surface and penetrations, ASME Class 1
    b. Secondary side visual examination of steam generators A, B, and C

The Inspectors evaluated the licensee's boric acid control program performance.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

(1) The inspectors observed and evaluated licensed operator performance in the control room during Unit 1 startup and criticality following scheduled refueling on May 31, 2021.

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

(1) Inspectors observed and evaluated licensed operator performance in the simulator for Unit 1 fuel cycle 31 startup and criticality just-in-time (JIT) training, on May 10, 2021.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

(1) Main steam safety valve leakage and obsolescence issues, on May 17, 2021.
(2) Unit 1 'A' low head safety injection recirculation check valve, on May 27, 2021.

Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSC remains capable of performing its intended function:

(1) Unit 1 'B' motor driven auxiliary feed water pump discharge check valve, on April 23, 2021.

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (2 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

(1) Elevated shutdown risk for reactor vessel head lift and restoration of vessel cavity level, on May 1, 2021.

(2) Unit 1 solid plant operations, with 'A' low head safety injection train out of service, while filling and venting safety injection accumulators using 'B' train of low head safety injection on May 27, 2021.

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (5 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

(1) CR1171119, Unit 1 service water to 'D' recirculation spray heat exchanger vent line leakage, on April 28, 2021.
(2) CR1172169, Unit 1 'C' safety valve nozzle nonconformance, on May 12, 2021.
(3) CR1171685, 'B' charging pump in IST alert, on May 13, 2021.
(4) CR1173055, Unit 1 high rod control cluster assembly drag profile at location B-08, on May 18, 2021.
(5) CR1173688, 1-SI-61 Unit 1 'A' low head safety injection recirculation check valve leakage, on May 26, 2021.

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

(1) Freeze seals in support of Unit 1 chemical volume control system non-regenerative heat exchanger and seal water heat exchanger cooling water relief valve maintenance, on May 6, 2021.
(2) Unit 1 service water to bearing cooling and recirculation spray flange inspection remediation and modification in turbine building associated with adverse conditions at SW-MOV-103B, 101C, and 101D, on May 20, 2021.

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (7 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

(1) Unit 1 low level intake structure vacuum priming air compressors following multiple failures, on April 19, 2021.
(2) Unit 1 fuel building upender return to service testing following hoist failure, CR1171627, on May 4, 2021.
(3) Unit 1 service water to recirculation spray 'D' repairs under word orders (WOs) 38204238652 and 38204238638, on May 5, 2021.
(4) Unit 1 'A' motor driven auxiliary feedwater pump following refueling outage planned maintenance window under WOs 38203875553 and 38204210306, on May 10, 2021.
(5) Unit 1 'B' charging pump following balance ring adjustment for elevated vibrations under WO 38103610535, on May 11, 2021

(6) 1-OPT-EG-009 OTO1, return to service of #1 EDG following Turbo Charger Replacement, on May 14, 2021.
(7) 1-OPT-SI-14, test of safety injection check valves to reactor coolant system cold legs following repair of 1-SI-61 U1 'A' low head safety injection recirculation check valve, on May 27, 2021.

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated Unit 1 refueling outage 1R30 activities from April 24, to May 31, 2021.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (4 Samples)

(1) 2-OPT-CS-002, Unit 2 Containment Spray Pump Quarterly Surveillances, on April 15, 2021.
(2) 1-OPT-ZZ-001, ESF Actuation with Undervoltage and Degraded Voltage - 1H bus, on April 27, 2021.
(3) 1-EPT-0106-01, Main Station Battery 1A Service Test, performed on May 5, 2021.
(4) 1-NPT-CT-101, Reactor Containment Building Integrated Leak Rate Test (Type A Containment Testing), on May 26, 2021.

Inservice Testing (IP Section 03.01) (1 Sample)

(1) 1-OPT-RS-003, Unit 1 Inside Recirculation Spray IST Surveillances, on May 12, 2021.

Containment Isolation Valve Testing (IP Section 03.01) (1 Sample)

(1) 1-OSP-CT-212, Containment Isolation Valve Testing performed on Penetration 110, Valves 1-CC-TV-140A and 140B, on May 17, 2021.

FLEX Testing (IP Section 03.02) (1 Sample)

(1) 0-MPM-1960-04, Beyond Design Basis Auxiliary Feedwater Pump Triennial Functional Testing, 0-BDB-P-2A, 0-BDB-P-2B, and 0-BDB-P-2C, on June 29, 2021.

71114.06 - Drill Evaluation

Select Emergency Preparedness Drills and/or Training for Observation (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated a licensee emergency planning drill in the simulator and technical support center, on March 30, 2021. The drill involved a tornado, loss of offsite power, small break loss of coolant accident, and fuel damage with associated emergency classification declarations, and protective action recommendations from

notice of unusual event to alert to general emergency.

Drill/Training Evolution Observation (IP Section 03.02) (1 Sample)

The inspectors evaluated:

(1) The inspectors evaluated a licensee emergency planning drill the simulator and technical support center on June 22, 2021. The drill involved an earthquake with multiple aftershock tremors, fuel damage, steam generator tube leak, and stuck open steam generator safety valve with associated emergency classification declarations and protective action recommendations from notice of unusual event to general emergency.

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated how the licensee identifies the magnitude and extent of radiation levels and the concentrations and quantities of radioactive materials and how the licensee assesses radiological hazards.

Instructions to Workers (IP Section 03.02) (1 Sample)

The inspectors evaluated instructions to workers including radiation work permits (RWPs) used to access high radiation areas.

(1) The inspectors reviewed the following radiation work packages:
- RWP 2111, Reactor Disassembly
- RWP 2503, Seal Table and Flux Thimbles
- RWP 2507, Blind Flange Removal
- RWP 2508, Reactor Head Lift
- RWP 2527, Fuel Transfer System Inspection and Repair

Contamination and Radioactive Material Control (IP Section 03.03) (2 Samples)

The inspectors evaluated licensee processes for monitoring and controlling contamination and radioactive material.

(1) Observed licensee perform surveys of potentially contaminated material leaving the radiologically controlled area (RCA).
(2) Observed workers exiting the RCA during the Unit 1 refueling outage.

Radiological Hazards Control and Work Coverage (IP Section 03.04) (5 Samples)

The inspectors evaluated in-plant radiological conditions during facility walkdowns and observation of radiological work activities. The inspectors reviewed the following radiological work packages for areas with potential airborne radioactivity:

(1) RWP 2111, Reactor Disassembly
(2) RWP 2503, Seal Table and Flux Thimbles
(3) RWP 2507, Blind Flange Removal
(4) RWP 2527, Fuel Transfer System Inspection and Repair
(5) RWP 2508, Reactor Head Lift

High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (3 Samples)

The inspectors evaluated licensee controls of the following High Radiation Areas and Very High Radiation Areas:

(1) HIC storage area in radwaste facility
(2) Sludge transfer pump room in radwaste facility
(3) Unit 1 containment

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 03.06) (1 Sample)

(1) The inspectors evaluated radiation worker and radiation protection technician performance as it pertains to radiation protection requirements.

71124.02 - Occupational ALARA Planning and Controls

Radiological Work Planning (IP Section 03.01) (5 Samples)

The inspectors evaluated the licensee's radiological work planning.

The inspectors reviewed the following ALARA planning packages:

(1) ALARA Plan 21-005 - U1R39 Valve Maintenance
(2) ALARA Plan 21-008 - U1R30 Reactor Disassembly
(3) ALARA Plan 21-009 - U1R30 Reactor Reassembly
(4) ALARA Plan 21-010 - U1R30 Scaffold Activities
(5) ALARA Plan 21-020 - U1R30 Bare Head Inspection

Verification of Dose Estimates and Exposure Tracking Systems (IP Section 03.02) (2 Samples)

The inspectors evaluated dose estimates and exposure tracking.

The inspectors reviewed the following as low as reasonably achievable planning documents and radiological outcome evaluations:

(1) ALARA Plan and Post Job review, AP 20-009, U2R29 Reactor Disassembly (RWP-20-3111)
(2) ALARA Plan and Post Job review, AP 20-003, U2R29 Station Operations Activities (RWP-20-3103)

Implementation of ALARA and Radiological Work Controls (IP Section 03.03) (3 Samples)

The inspectors reviewed as low as reasonably achievable practices and radiological work controls.

The inspectors reviewed the following activities:

(1) Unit 1 fuel transfer cart survey and vendor inspection and repair activities. RWP 21-2102
(2) Unit 1 reactor disassembly activities (cable removal, hoist installation, and de-tensioning). RWP 21-210
(3) Unit 1 primary steam generator eddy current. RWP 21-2502

Radiation Worker Performance (IP Section 03.04) (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance during:

(1) Unit 1 fuel transfer cart survey and vendor inspection and repair activities.

OTHER ACTIVITIES – BASELINE

71152 - Problem Identification and Resolution

Semiannual Trend Review (IP Section 02.02) (1 Sample)

(1) The inspectors reviewed the licensee's corrective action program for potential adverse trends in fire protection program control of transient combustibles that might be indicative of a more significant safety issue.

71153 - Follow Up of Events and Notices of Enforcement Discretion

Event Followup (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated a loss of the capability to activate the sirens from both Surry local activation sites reported in accordance with 10 CFR 50.72(b)(2)(xi) and 10 CFR 50.72{b)(3)(xiii) documented in EN# 55299 and licensee's response on June 9, 2021.

INSPECTION RESULTS

Transient Combustibles Stored in Restricted Area			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000280/2021002-01 Open/Closed	[P.3] - Resolution	71152
NRC inspectors identified a finding of very low safety significance (Green) and an associated non-cited violation (NCV) of License Condition 3.I, Fire Protection, associated with Dominion Energy's failure to implement and maintain in effect the provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report (UFSAR), which resulted in transient combustible conditions adverse to fire protection including storage within a restricted or combustion free zone.			

Description: The inspectors performed a trend review of the transient combustible program based upon three NRC-identified and eight licensee-identified conditions adverse to fire protection dating from April 29, through May 12, 2021. These events included storage without a permit, storage in excess of permit limits, storage under an expired permit, storage under a permit for a different work activity, revising permit limits without updated safety review and approval, and storage in a restricted area without variance.

Surry implements the transient combustible program in accordance with CM-AA-FPA-100, Fire Protection/Appendix R (Fire Safe Shutdown) Program, and CM-AA-FPA-101, Control of Combustible and Flammable Materials, as incorporated by the Surry UFSAR and license commitment. In accordance with this process, the station entered the conditions adverse to fire protection from April 29, 2021, through May 12, 2021, into the corrective action program, restoring conditions in the field, performing crew human factors clock resets, departmental operating experience presentations, performance gap analyses, and training needs analyses. However, Dominion Energy's resolution of these events failed to prevent the same and similar failures to implement the transient combustible program as discovered by the NRC inspectors during a follow-up walkdown in one of the previously challenged areas, the auxiliary building 13-foot elevation, on June 16, 2021.

Specifically, the inspectors observed expired transient fire loading permit #403 at gate 15, with associated materials remaining in the work area. This permit supported a freeze seal and relief valve replacement completed four weeks earlier during the Unit 1 refueling outage.

The inspectors also found a large full radwaste trash bag, blue plastic floor matting, and a mop, bucket, and wringer assembly within the Unit 2 'A' charging pump cubicle without any posted transient fire loading permit. These materials remained from planned maintenance on the pump which was returned to service the week before. The inspectors engaged with the licensee on June 16, 2021, to determine which permit covered the associated work activity. However, the licensee could not identify any within the station database which is required to be tracked and maintained by CM-AA-FPA-101.

Furthermore, the inspectors identified installed plastic matting as well as additional rolls of plastic matting, tape, and an oil drum stored immediately adjacent to and taller than the two-foot-high dike surrounding the Unit 1 charging pumps. Licensee procedure CM-AA-FPA-101, Attachment 9, Surry Power Station Transient Combustible Loading Limits and Restrictions, restricts loading in this area such that no transients will be stored within 10 feet of the charging pump dikes. Surry UFSAR, Section 9.10.2.4 describes these dikes as erected at the entrances to the charging pump cubicles to prevent pump damage from a transient combustible liquid spill or from possible fire protection leakage. The station posted transient fire loading permit #405 in the area to support the work activity with the step to "observe restrictions in fire zones listed in [CM-AA-FPA-101] Attachments 8 and 9 or obtain variance" checked completed. However, the inspectors found that the station had failed to establish any variance or compensatory actions associated with the transient combustibles stored within a restricted area or combustion free zone.

Corrective Actions: On June 16, 2021, Dominion Energy corrected the identified conditions adverse to fire protection in the field. The station has developed additional actions to assess weakness in prior corrective actions as well as identifying programmatic opportunities for improvement.

Corrective Action References: CR1172184, CR1172065, CR1172598, CR1175926, CA8483490

Performance Assessment:

Performance Deficiency: The inspectors found that Dominion Energy's failure to implement the fire protection program in accordance with licensee procedures CM-AA-FPA-100 and CM-AA-FPA-101, which resulted in transient combustible conditions adverse to fire protection, was a performance deficiency reasonably within the licensee's ability to foresee and prevent.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the NRC inspectors identified transient combustibles stored adjacent and taller than the Unit 1 charging pump dike adversely affected the restricted or combustion free zone's function to prevent fire spread. The inspectors used IMC 0612, Appendix E, "Examples of Minor Issues," dated January 1, 2021, to inform answers to the more than minor screening questions and found this condition consistent with more than minor example 4.j.

Significance: The inspectors assessed the significance of the finding using Appendix F, "Fire Protection and Post - Fire Safe Shutdown SDP." This finding was determined to be of very low safety significance (Green) as the unattended transient combustibles stored adjacent to the Unit 1 charging pump dike screened to a "low degradation" grading in accordance with IMC 0609, Appendix F, Attachment 2.

Cross-Cutting Aspect: P.3 - Resolution: The organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance. The inspectors found that Dominion Energy's actions taken to address conditions adverse to fire protection from April 29 through May 12, 2021, failed to prevent the same and similar failures to implement the transient combustible program discovered by the NRC inspectors on June 16, 2021.

Enforcement:

Violation: License Condition 3.I, "Fire Protection," states in part, "The licensee shall implement and maintain in effect the provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report…" UFSAR Section 9.10.1, Design Bases, states in part, "Compliance with these criteria is contained in the following documents… Fire Protection Program document and the associated Administrative Procedures describe the administrative and technical controls." Licensee procedure CM-AA-FPA-101, Attachment 9, Surry Power Station Transient Combustible Loading Limits and Restrictions, restricts loading such that no transients will be stored within 10 feet of the charging pump dikes.

Contrary to the above, on June 16, 2021, Dominion Energy failed to implement and maintain in effect the provisions of the approved fire protection program as described in the UFSAR, resulting in noncompliance with the fire protection program document, CM-AA-FPA-100, and the associated administrative procedure, CM-AA-FPA-101, which describe the administrative and technical controls of transient combustibles. Specifically, transient combustible material was stored immediately adjacent to and taller than the two-foot-high

dike surrounding the Unit 1 charging pumps.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On July 22, 2021, the inspectors presented the integrated inspection results to Mr. Doug Lawrence, Surry Site Vice President, and other members of the licensee staff.
- On June 18, 2021, the inspectors presented the in-service inspection results to Mr. Doug Lawrence, Surry Site Vice President, and other members of the licensee staff.
- On May 5, 2021, the inspectors presented the radiation safety inspection results to Mr. Doug Lawrence, Surry Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Drawings	11448-FM-084B Sheet 1	Recirculation Spray System	
		11448-FM-087A SH-001	Residual Heat Removal System Flow Diagram	23
		11448-FM-087A SH-002	Residual Heat Removal System Flow Diagram	33
	Procedures	0-MCM-1202-05	CLOSING AND OPENING THE EQUIPMENT HATCH FOR REFUELING INTEGRITY	11
		0-MCM-1202-06	Emergency Closure of the Equipment Hatch	13
		1-OPT-RH-001A	RHR System Alignment	6
		1-OPT-RS-003	FLOW TEST OF INSIDE RECIRCULATION SPRAY PUMPS 1-RS-P-1A AND 1-RS-P-1B	30
71111.05	Corrective Action Documents Resulting from Inspection	CR1172065		
		CR1172598		
		CR1172598		
	Fire Plans	0-FS-FP-121	Diesel Generator Room Number 1 Elevation 27 feet - 6 inches	002
		1-FS-FP-107	Unit 1 Emergency Switchgear Room Elevation 9 feet - 6 inches	003
		1-FS-FP-134, 135, 136, 137	Unit 1 Containment	1
		1-FS-FP-140	Safeguards Basement - Unit 1 Elevation 11 feet - 6 inches	002
		1-FS-FP-141	Safeguards Spray Side - Unit 1 Elevation 27 feet - 6 inches	002
		1/2-FS-FP-157	Charging Pumps - Unit 1/2 Auxiliary Building Elevation 13 feet - 0 inches and 2 feet - 0 inches	003
		1/2-FS-FP-159	Auxiliary Building - General Area Unit 1/2 Elevation 13 feet	002
	Procedures	CM-AA-FPA-101	Control of Combustible and Flammable Materials	15
71111.06	Corrective Action Documents	CR1172021		
		CR1172203		
		CR1174293		
		CR1174301		
		CR1174322		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.08P	Corrective Action Documents	CR-1172381	Circumferential Primary Water Stress Corrosion Cracking detected during eddy current examination	5/9/21
		CR-1172672	Through wall hole in 1-RC-E-1 , #4 and #5, primary steam separator riser barrels	5/12/21
	Engineering Evaluations	51 - 9323920 - 000	Surry Unit 1 1R30 Steam Generator ECT Inspection Plan	3/8/21
		51-9325076-000	Site Validation of EPRI Qualified Eddy Current Techniques for Surry 1R30	4/28/21
		ETE-CEP-2019-1006	Steam Generator Condition Monitoring And Operational Assessment Surry Unit 1 (R29)	11/13/19
		ETE-CEP-2021-1002	Steam Generator Degradation Assessment, Surry Unit 1 Refueling Outage 1R30, Spring 2021	3/31/21
		ETE-CEP-2021-1003	Steam Generator Condition Monitoring and Operational Assessment, Surry Unit 1 Refueling Outage EOC30 (1R30), Spring 2021	5/15/21
		ETE-SU-2021-0025	Unit-1 Steam Generator Riser Barrel Repair	5/16/21
	Miscellaneous	03-9315755	Steam Generator Tube - Rolled Tube Plug & Stabilizer Installation (ZR) Field Procedure	5/11/21
		1R30 Probe Noise Limits and Actual Plots, CERTREC No. 66	SG"C"-PP-Dents, SG"A"- Bobbin-AVB, SG"C" Array-TS-CF	5/13/21
		I.D. Code J6276	Certificate of Personnel Qualification, Level III-QDA	Exp. 7/28/21
		ID: B2687 NDE Examiner	Supplemental NDE Personnel Certification Review Checklist	3/31/21
		PPI-AA-100-1004, Attachment 2	Self-Assessment, Steam Generator Program	June 2017
		SURRY-ETSS1-BOBBIN	Surry Unit-1, Outage 1R30, Examination Technique Specification Sheet	5/1/21
		TS 6.4-11	Steam Generator (SG) Program, Tech Spec	1/28/13
	NDE Reports	MT-21-002	Magnetic Particle Examination of Weld 2-10	05/05/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		MT-21-003	Magnetic Particle Examination of Weld 1-01	05/14/2021
		UT-21-007	Ultrasonic Examination of Weld 2-10	05/15/2021
		UT-21-024	Ultrasonic Examination of Weld 1-A02	05/15/2021
		UT-21-047	Ultrasonic Examination of CRD-54	05/18/2021
		UT-21-047	Ultrasonic Examination of CRD-54	05/18/2021
		VE-21-001	Reactor Vessel Upper Head Bare Metal Visual Examination	05/13/2021
	Procedures	Doc. ID No.: 03-9315755	Steam Generator Tube, Rolled Tube Plug & Stabilizer Installation Field Procedure (Completed)	5/11/21
		ER-AA-NDE-MT-200	Dry Magnetic Particle Examination Procedure Using Yokes	8
		ER-AA-NDE-UT-702	Ultrasonic Examination of Ferritic Vessel Welds Greater Than 2.0" in Thickness	7
		ER-AA-NDE-UT-703	Ultrasonic Examination of Vessel Welds 2.0" and Less in Thickness	2
		ER-AA-NDE-VT-604	Visual Examination (VE) for Leakage of PWR Reactor Head Penetrations	4
		ER-AP-BAC-101	Boric Acid Corrosion Control Program Inspections	13
		ER-AP-BAC-102	Boric Acid Corrosion Control Program Evaluations	14
	Work Orders	Work Orders (by Number)	38203876808	
71111.11Q	Procedures	1-GOP-1.4	UNIT STARTUP, HSD TO 2% REACTOR POWER	64
		1-GOP-1.8.1	UNIT STARTUP, RCS HEATUP FROM AMBIENT TO HSD, WITHOUT MAIN CONDENSER VACUUM	20
71111.12	Corrective Action Documents	CA8456277	BADA to RP to clean and provide post cleaning photo of 1-SI-61	06/30/2021
		CR1170759	Boric Acid on 1-SI-61	04/21/2021
		CR1173429	Boric Acid accumulating on 1-SI-61	05/21/2021
	Corrective Action Documents Resulting from Inspection	CR1172169 / CA8474854		
	Miscellaneous		IQReview Preventive Maintenance Database Main Steam Safety Valve Maintenance Strategy	
	Procedures	1-OPT-FW-002	Motor Driven Aux Feedwater Pump 1-FW-P-3B Operations	40

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Periodic Test	
	Work Orders	WO38204205847	Open and Inspect Check Valve 01-SI-61CKVALV	04/21/2021
71111.13	Miscellaneous		Shutdown Risk Plan for Reactor Head Lift on May 1, 2021	
			Shutdown Risk Review for May 27, 2021	
	Procedures	NF-AA-PRA-370	Probabilistic Risk Assessment Procedures and Methods: MRule (a)(4) Risk Monitor Guidance	21
71111.18	Corrective Action Documents	CR1172203		
		CR1172021		
	Work Orders	38204220592		
		38204220593		
71111.19	Corrective Action Documents	CR1173652, CR1169711, CR1169718, CR1169724, CR1169726, CR1170404, CR1170743		
71111.20	Drawings	11448-FM-072C SH-004	Component Cooling Water	
	Miscellaneous	1R30 Unit 1 Refueling Outage Risk Plan	1R30 Unit 1 Refueling Outage Risk Plan	
	Procedures	1-GOP-2.1	UNIT SHUTDOWN, POWER DECREASE FROM ALLOWABLE POWER TO LESS THAN 30% REACTOR POWER	51
		1-GOP-2.2	UNIT SHUTDOWN, LESS THAN 30% TO HSD	49
		1-GOP-2.4	UNIT COOLDOWN, HSD TO 351°F	59
		1-GOP-2.5	UNIT COOLDOWN, 351°F TO LESS THAN 205°F	37
		1-MCM-1150-01	UNIT ONE REACTOR DISASSEMBLY AND REASSEMBLY	44
		1-OP-FH-001	CONTROLLING PROCEDURE FOR REFUELING	45
		1-OP-RC-004	DRAINING THE RCS TO REACTOR FLANGE LEVEL	39
		1-OP-RH-001	RHR OPERATIONS	29
		GMP-001	HEAVY LOAD RIGGING AND MOVEMENT	38
71114.06	Miscellaneous		Surry Power Station Emergency Preparedness Drill Plan	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			executed on March 30, 2021	
			Surry Power Station Emergency Preparedness Drill Plan executed on June 22, 2021	
71124.01	Corrective Action Documents	CRs 1150851, 1150892, 1162330, and 1166682	Corrective Action Program documents related to radiological hazards and controls	Various
	Procedures	RP-AA-226	Alpha Monitoring	5
		RP-AA-230	Personnel Contamination Monitoring and Decontamination	12
	Radiation Surveys	Radiological Survey no. 157	Unit 1 Containment - Incore Sump Room	04/27/2021
71124.02	ALARA Plans	21-016	U1R30 - Primary Steam Generator Eddy Current ALARA Review	03/24/2021
	Calculations	2019 Online Dose	2019 Online Department Exposure Status	01/01/2020
		2020 Online Dose	2020 Online Department Exposure Status	01/01/2021
		2021 Online Dose	ALARA Monthly Dose Projections (by Department)	01/01/2021
		RWP 21-2111	TEDE ALARA Review	03/15/2021
		RWP 21-2112	TEDE ALARA Review	03/15/2021
		RWP 21-2502	TEDE ALARA Review	03/15/2021
		TSR 21-0026	Unit 1 Equipment Hatch Personnel Monitoring Building (RP exit monitor background reduction)	04/08/2021
	Corrective Action Documents	CR1169120, CR1160457, CR1160091, CR1158743, CR1153985, CR1152548, CR1147993, CR1143230, CR1128311, CR1124687, CR1107655, CR1106998, CR1105811, and	ALARA related CAP documents	Various

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CR1102738		
	Drawings	Temporary Shielding Request (TSR) 21-012	Unit 1 Fuel building transfer tube gap (45" elevation)	04/08/2021
		TSR 21-001	Shield wall for radiation monitor 1-RM-RMS-159/160, Containment Atmosphere Radiation Monitor	04/08/2021
	Miscellaneous	20-003	50% Work in Progress Review (WIPR) for RWP 20-3111, U2R29 Reactor Disassembly	05/08/2020
		20-009	80% WIPR for RWP 20-3111, U2R29 Reactor Disassembly	05/16/2020
		20-019	50% WIPR for ALARA Plan 20-003	05/24/2020
		U1R29 RFO	Surry Unit 1 ALARA Refueling Outage Report (Fall 2019)	01/09/2020
		U2R29 RFO	Surry Unit 2 ALARA Refueling Outage Report (Spring 2020)	06/29/2020
	Procedures	RP-AA-1	Nuclear Fleet Policy - RADIOLOGICAL SAFETY	08/04/2015
		RP-AA-103	ALARA Program	2
		RP-AA-111	Monitoring and Improving Radiological Performance	4
		RP-AA-111-1003	ALARA Program Review	1
		RP-AA-300	ALARA Reviews and Reports	10
		RP-AP-1001	Source Term Reduction and Control	3
		RP-SU-101-1000	Health Physics Operations: Department Standards	2
		VPAP-2105	Temporary Shielding Program	11
	Radiation Surveys		Unit 1 Containment Transfer Canal, water level just below the transfer cart tracks - AMP -100 Survey prior to entry.	04/27/2021
	Self-Assessments	Audit 20-06	Radiation Protection, Process Control Program, and Chemistry	09/16/2020
71152	Corrective Action Documents Resulting from Inspection	CR1172184, CR1172065, CR1172598, CR1175926, CA8483490		
	Procedures	CM-AA-FPA-100	Fire Protection/Appendix R (Fire Safe Shutdown) Program	16
		CM-AA-FPA-101	Control of Combustible and Flammable Materials	15
		CM-AA-FPA-102	Fire Protection and Fire Safe Shutdown Review and Preparation Process and Design Change Process	10