



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

August 5, 2019

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

SUBJECT: SURRY POWER STATION – NRC INTEGRATED INSPECTION REPORT
05000280/2019002 AND 05000281/2019002; 07200055/2019001

Dear Mr. Stoddard:

On June 30, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Surry Power Station. On July 3, 2019, the NRC inspectors discussed the results of this inspection with Mr. Fred Mladen and other members of your staff. The results of this inspection are documented in the enclosed report.

No NRC-identified or self-revealing findings were identified during this inspection.

The inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating this violation as non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Bradley J. Davis, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos. 05000280 and 05000281
07200055

License Nos. DPR-32 and DPR-37
SNM-2501

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: SURRY POWER STATION – NRC INTEGRATED INSPECTION REPORT
05000280/2019002 AND 05000281/2019002; 07200055/2019001

DISTRIBUTION:

M. Kowal, RII
S. Price, RII
K. Sloan, RII
OE Mail
RIDSNRDIRS
PUBLIC
RidsNrrPMSurry Resource

ADAMS ACCESSION NUMBER: **ML19217A072**

OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRP
NAME	L. McKown	C. Read	S. Monarque /RA BD for/	C. Stancil
DATE	7/30/2019	7/30/2019	8/5/2019	7/30/2019
OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRP
NAME	D. Jackson	J. Dodson	P. Niebaum	B. Davis
DATE	8/1/2019	8/1/2019	8/1/2019	8/5/2019

OFFICIAL RECORD COPY

**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Numbers: 05000280 and 05000281
07200055

License Numbers: DPR-32 and DPR-37
SNM-2501

Report Numbers: 05000280/2019002 and 05000281/2019002
07200055/2019001

Enterprise Identifier: I-2019-002-0030
I-2019-001-0124

Licensee: Virginia Electric and Power Company

Facility: Surry Power Station

Location: Surry, VA

Inspection Dates: April 1, 2019 to June 30, 2019

Inspectors: L. McKown, Senior Resident Inspector
C. Read, Resident Inspector
S. Monarque, Project Engineer
C. Stancil, Senior Fuel Facility Inspector

Approved By: Bradley J. Davis, 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. A licensee-identified non-cited violation is documented in report section 71153.

List of Findings and Violations

No findings or violations of more than minor significance were identified.

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000281/2019-001-00	LER 2019-001-00, Foreign Material in Breaker Contact Causes Pressurizer Power Operated Relief Valve Block Valve Inoperability.	71153	Closed

PLANT STATUS

Unit 1 operated at or near rated thermal power for the entire inspection period.

Unit 2 began the inspection period at rated thermal power. On April 22, 2019, the unit was down powered to 83 percent to repair both high pressure heater drain pumps. The unit was returned to rated thermal power on April 25, 2019, and remained at or near rated thermal power for the remainder of the 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 performed plant status activities described in IMC 2515 Appendix D, "Plant Status" and conducted routine reviews using IP 71152, "Problem Identification and Resolution." 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.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Summer Readiness Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated summer readiness prior to the onset of seasonal hot temperatures for plant ventilation systems, vital equipment checks, and temporary equipment installation on May 13, 2019.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (5 Samples)

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

- (1) Unit 1 Turbine Driven Auxiliary Feedwater system on April 18, 2019.
- (2) Emergency Service Water Pumps 1-SW-P-1A and -1C protected equipment on April 29, 2019.
- (3) #2 and #3 Emergency Diesel Generators (EDG) during testing of the #1 EDG on June 24, 2019.
- (4) Unit 2 Reactor Trip and Bypass Trip Breaker Partial Alignment on June 25, 2019.
- (5) Unit 1 Charging Operating pump trains during overhaul of the 'C' Charging Pump on June 28, 2019.

71111.04S - Equipment Alignment

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

- (1) The inspectors evaluated system configurations during a complete walkdown of the fire protection system on May 31, 2019.

71111.05Q - Fire Protection

Quarterly Inspection (IP Section 03.01) (6 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Mechanical Equipment Rooms 3 and 4 Smoke Detector Test, 1-SW-263, Appendix R Isolation Valve on May 3, 2019.
- (2) Inadequate step in procedures 0-AP-13.00 and 0-FCA-7.00 which failed to isolate Mechanical Equipment Room (MER) 3 from MER 5 following a fire or flood in MER 3 on May 8, 2019.
- (3) AAC diesel generator building on March 16, 2019.
- (4) Auxiliary Building Elev. 45 ft on May 31, 2019.
- (5) Fuel Building on May 31, 2019.
- (6) Unit 2 Emergency Switchgear Room on June 12, 2019.

71111.11Q - Licensed Operator Regualification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (2 Samples)

- (1) The inspectors observed and evaluated licensed operator performance in the Control Room during a Unit 2 down power from 100 percent to 83 percent reactor power to support high pressure heater drain pump maintenance on April 22, 2019.
- (2) The inspectors observed and evaluated licensed operator performance in the Control Room when raising Unit 2 power from 83 percent to 100 percent reactor power following high pressure heater drain pump maintenance on April 25, 2019.

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

- (1) The inspectors observed and evaluated a scenario in which a toxic gas was released and multiple fission product barriers failed on June 18, 2019.

71111.12 - Maintenance Effectiveness

Quality Control (IP Section 02.02) (1 Sample)

The inspectors evaluated maintenance and quality control activities associated with the following equipment performance activities:

- (1) Emergency Service Water Pump 1-SW-P-1B Replacement and Testing, Work Order 38077550701 and 0-MCM-0114-01, April 30 - May 3, 2019.

Routine Maintenance Effectiveness Inspection (IP Section 02.01) (3 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Inspection and Overhaul of Unit 1, 1-SW-268 check valve on April 10, 2019.
- (2) Charging pump bearings and seals preventative maintenance effectiveness review on June 17, 2019.
- (3) Maintenance Rule structural inspections of the fire pump house and evaluations of cracks in block walls on June 18, 2019.

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (7 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Unit 1 and Unit 2 intake canal level probe testing on April 10, 2019.
- (2) Unit 1 and Unit 2 emergent offsite power switching activities planned during emergency service water pump maintenance on April 18, 2019.
- (3) Unit 2 downpower to 83%, high pressure heater drain pump replacement, and removal of floor grating for access to EOP components on April 22, 2019.
- (4) Unit 1 and 2 emergency service water pump replacement week of April 29, 2019.
- (5) Unit 2 reactor coolant pump underfrequency testing on May 31, 2019.
- (6) Unit 1 emergent online troubleshooting of high pressure feedwater heater '1B' moisture separator drain tank normal level control valve erratic operation on June 12, 2019.
- (7) Unit 1 and Unit 2 transportation of a dry storage cask to ISFSI pad and insertion into a horizontal storage module on June 13, 2019.

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 02.02) (6 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) CR1122159, Degraded Rebar and Concrete Associated with 1-SW-P-1B Pump Floor Slab, on April 30, 2019.
- (2) CR1122689, High Vibrations on 1-SW-P-1B, 'B' Emergency Service Water Pump, on May 7, 2019.
- (3) CR1073491, operability impact of silt deposits in intake canal on ultimate heat sink
- (4) CR1124848, Main Control Room Chiller '4A' Failure to Start, first attempted start since 2017 on June 11, 2019.
- (5) CR1125718, Delayed Undervoltage Light during Unit 2 Train 'A' Reactor Protection Logic Testing on June 25, 2019.
- (6) CR112529, Failure to complete diagnosis of fire due to performance of parallel Time Critical Operator Actions in AP-48.00, Fire Protection - Operations Response, on June 26, 2019.

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Temporary Modifications for 1-SW-P-1B Pump Heavy Lifts: Fuel Oil Line Jumper and Flood Protection Restoration.

71111.19 - Post-Maintenance Testing

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

The inspectors evaluated the following post maintenance tests:

- (1) 1-PT-41.1, Component Cooling Water (CC) Pumps Performance Test after replacement of the '1A' CC pump seals and motor refurbishment on April 2, 2019.
- (2) 2-OSP-TM-001, Turbine Inlet Valve Freedom Test, after cam adjustment of the Unit 2 #4 Turbine Stop Valve, on April 24, 2019.
- (3) Post Maintenance Testing of Unit 1, 1-SW-268 check Valve on April 10, 2019.
- (4) 0-OPT-SW-008, Emergency Service Water Pump 1-SW-P-1B Comprehensive Test after replacement of the 1-SW-P-1B pump on May 3 and 6, 2019.
- (5) 0-OP-AAC-001, AAC Diesel Generator Operation, on June 13, 2019 following 3-year and 6-year preventative maintenance packages.
- (6) 2-PT-8.1, Reactor Protection Logic Test following swapping leads on the Channel 1 Overtemperature Delta Temperature Relay 2-RP-RLY-TC412CXA, on June 26, 2019.
- (7) 0-OPT-SW-002, Emergency Service Water Pump 1-SW-P-1B Periodic Test following packing gland failure on June 23, 2019.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

FLEX Testing (IP Section 03.02) (1 Sample)

- (1) Annual testing of the following FLEX equipment from June 10 through June 24, 2019:
 - 1-FP-P-4, Portable Backup Diesel Fire Pump
 - 0-BDB-P-1, Beyond Design Basis (BDB) High Capacity Pump
 - 0-BDB-P-3B, BDB RCS Pump 3B
 - 0-BDB-GEN-1B, BDB 40kW 120/240VAC Diesel Generator
 - 0-BDB-GEN-1C, BDB 40kW 120/240VAC Diesel Generator

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) 1-OPT-CS-002, Containment Spray System Test, on April 15, 2019.

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

- (1) 2-OPT-SI-005, Low Head Safety Injection (LHSI) Pump Test, on April 12, 2019.

- (2) 2-OPT-EG-001Q, Number 2 Emergency Diesel Generator Quarterly/Monthly Load Test, on April 8, 2019.
- (3) 0-NSP-CW-006, Canal Level Probe Removal, Inspection and Cleaning, on April 10, 2019.
- (4) 1-OPT-CH-002, Charging Pump Operability and Performance Test for 1-CH-P-1B, on May 16, 2019.

71114.06 - Drill Evaluation

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

The inspectors evaluated:

- (1) The inspectors evaluated a licensee emergency planning drill from the control room simulator on June 18, 2019. The drill involved a toxic gas release and the failure of multiple fission product barriers resulting in a General Emergency declaration.

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

- (1) The inspectors evaluated a licensee emergency planning drill at the Corporate Emergency Response Center in Glen Allen, VA, on April 11, 2019. The drill involved an earthquake within 200km of Surry which resulted in an Alert declaration due to a hazardous atmosphere at the low level intake structure. The drill also involved aftershocks which resulted in a loss of fuel clad barrier and eventually a large break loss of coolant accident, which ultimately resulted in a General Emergency declaration.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

BI01: Reactor Coolant System (RCS) Specific Activity Sample (IP Section 02.10) (2 Samples)

- (1) Unit 1 (April 1, 2018 through March 31, 2019)
- (2) Unit 2 (April 1, 2018 through March 31, 2019)

BI02: RCS Leak Rate Sample (IP Section 02.11) (2 Samples)

- (1) Unit 1 (April 1, 2018 through March 31, 2019)
- (2) Unit 2 (April 1, 2018 through March 31, 2019)

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (2 Samples)

- (1) Unit 1 (April 1, 2018 through March 31, 2019)
- (2) Unit 2 (April 1, 2018 through March 31, 2019)

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (2 Samples)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) Challenges to operator performance including operator work arounds, burdens and challenges; main control room deficiencies and distractions; and night/standing orders on April 4, 2019.
- (2) Loss of Configuration Control of Surry Unit 1 Outside Recirculation Spray Pump 01-RS-P-2B Recirculation Isolation Valve 1-RS-6 due to degraded Stem to Disc Interface (CR1114023) on June 24, 2019.

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

- (1) The inspectors reviewed the licensee's corrective action program for potential adverse trends in scheduling and completion of items added and removed from the equipment reliability top 10 focus items list that might be indicative of a more significant safety issue on June 26, 2019.

71153 - Followup of Events and Notices of Enforcement Discretion

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event report (LER):

- (1) LER 05000281/2019-001-00, Foreign Material in Breaker Contact Causes Pressurizer Power Operated Relief Valve Block Valve Inoperability (ADAMS accession ML19098A163). The circumstances surrounding this LER are documented in the Results section. (Closed)

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

60855.1 - Operation of an Independent Spent Fuel Storage Installation at Operating Plants

Operation of an Independent Spent Fuel Storage Installation at Operating Plants (1 Sample)

- (1) The inspectors evaluated the licensee's independent spent fuel storage installation (ISFSI) cask loadings on June 3, 2019. Specifically, the inspectors observed the following activities:
 - Fuel selection and fuel loading
 - Heavy load movement of dry shielded canister/transfer cask
 - Radiological field surveys

The inspectors evaluated the licensee's ISFSI cask movement and installation into the horizontal storage module on June 13, 2019. Specifically, the inspectors observed the following activities:

- Heavy load movement of transfer cask
- Radiological field surveys
- Transportation of the transfer cask to the ISFSI pad

The inspectors evaluated the licensee's ISFSI cask movement and installation into the horizontal storage module on June 20, 2019. Specifically, the inspectors observed the following activities:

- Radiological field surveys
- Transportation of the transfer cask to the ISFSI pad
- Installation of the transfer cask into the horizontal storage module

The inspectors evaluate the following program changes:

- Revision of procedure 0-OP-FH-072, NUHOMS 32 PTH Dry Shielded Canister Loading and Unloading, Revisions 28 and 29

INSPECTION RESULTS

Licensee-Identified Non-Cited Violation	71153
This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.	
<p>Violation: Surry Technical Specification 6.4.A.7 states, in part, that “detailed written procedures with appropriate check-off lists and instructions shall be provided for conditions that include: preventive or corrective maintenance operations which would have an effect on the safety of the reactor.” Surry Technical Specification 6.4.D states, in part, that “procedures described in section 6.4.A shall be followed.” These requirements were implemented, in part, by WO38102324301 and procedure MA-AA-102, Foreign Material Exclusion. Contrary to the above, on November 7, 2018, the licensee failed to follow the written procedures and instructions for breaker preventive maintenance of a unit 2 pressurizer power operated relief valve (PORV) block valve 2-RC-MOV-2536 including foreign material closeout, which resulted in a nylon brush bristle lodged in the valve breaker stationary closed contactor assembly and inoperability of the associated PORV block valve from December 4, 2018, to January 29, 2019. The pressurizer PORV block valves are active reactor coolant system boundary valves which provide the operators with the ability to detect a stuck-open safety or relief valve and to isolate a stuck-open PORV. The licensee reported the operation prohibited by Technical Specifications to the NRC on April 1, 2019, as Licensee Event Report 50-281/2019-001-00, “Foreign Material in Breaker Contact Causes Pressurizer Power Operated Relief Valve Block Valve Inoperability.”</p> <p>Significance: Green. The failure to prevent foreign material from affecting operation of PORV block valve 2-RC-MOV-2536 was a performance deficiency (PD). The inspectors assessed the significance of the finding using IMC 0609 Attachment 4, “Initial Characterization of Findings,” Table 2, dated October 7, 2016, and the finding was determined to adversely affect the Barrier Integrity cornerstone under the active components of boundary (valve, seals) area to measure. Specifically, the pressurizer PORV block valve was not available to provide the operators with the ability to detect a stuck-open safety or relief valve and to isolate a stuck-open PORV. An independent bounding risk analysis was performed by a regional senior reactor analyst in accordance with NRC Inspection Manual Chapter 0609 Appendix A. The analysis assumed a non-recoverable failure to operate of the 2-RC-MOV-2536 block valve with no common cause impact for a period of 57 days. The analysis determined that the increase in core damage frequency due to the PD was less than 1E-7/year, a Green finding of very low safety significance.</p> <p>Corrective Action References: CR1113030</p>	

EXIT MEETINGS AND DEBRIEFS

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

- On July 3, 2019, the inspectors presented the integrated inspection results to Mr. Fred Mladen and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
60855.1	Miscellaneous	Loading for Surry Spent Fuel Pool		05/28/2019
		S1-OP-19-03	Fuel Handling Report	
	Procedures	0-OP-FH-072	NUHOMS 32 PTH Dry Shielded Canister Loading and Handling	29
		HP-1061.500	NUHOMS Spent Fuel Cask Preparation/Loading and Transport to ISFSI	6
71111.01	Calculations	ME-12152	Loss of Ventilation in the Cable Vault and Tunnel	0
	Corrective Action Documents	CR1118627	Calculation provides elevated temperature at DBA with loss of ventilation.	03/19/2019
	Corrective Action Documents Resulting from Inspection	CR1124184	Unit 1 upper cable vault ventilation O.O.S. and high temperature	05/30/2019
	Procedures	0-OSP-ZZ-003	Hot Weather Preparation	8
71111.04	Drawings	113E244A	Reactor Protection System Reactor Trip Matrices - Surry Power Station - Unit 2	20
	Miscellaneous	1-19-SW-00010	Safety Tagout of 1-SW-P-1B	April 30, 2019
	Procedures	0-OP-SW-002A	Emergency Service Water System Alignment	10
		1-OP-CH-002	Charging Pump A Operations	24
		1-OP-CH-003	Charging Pump B Operations	26
		1-OPT-FW-003	Turbine Driven Auxiliary Feedwater Pump 1-FW-P-2	54
	2-PT-8.1	Reactor Protection System Logic (for Normal Operations)	40	
71111.04S	Corrective Action Documents	CR1086466, CR1091946, CR1092279, CR1116987, CR1121992, CR1123110, CR1123469		
	Drawings	11448-FB-2A	Fire Protection - Arrangement, Surry Power Station	22

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		11448-FB-3A	Yard, Water & Fire Protection Lines, Surry Power Station - Unit 1	27
		11448-FB-47A	Flow/Valve Operating Numbers Diagram, Fire Protection & Domestic Water System, Surry Power Station - Unit 1	34
	Miscellaneous	Module NCRODP-6-S-6-S	Nuclear Control Room Operator Development Program Surry Power Station: Fire Protection System	10/06/2017
		SDBD-SPS-FP	System Design Basis Document for Fire Protection System	17
	Procedures	0-AP-48.00	Fire Protection-Operations Response (with 5 attachments)	37
		0-LPT-FP-006	Inspection of Hose Stations and Fire Extinguishers - RCA/North Yard	8
		0-OP-FP-006	Operation of Fire Protection Systems	17
		1-OP-52.2A	Fire Protection System Alignment	16
		CM-AA-FPA-100	Fire Protection/Appendix R (Fire Safe Shutdown) Program	13
	71111.05A	Drawings	11548-FE-51R	Wiring Diagram Internal and External Fire Protection Panel, Surry Power Station, Unit 2
Procedures		0-FCA-7.00	Limiting Mechanical Equipment Room 3 or Fire	13
71111.05Q	Drawings	11448-FM-071D	Flow/Valve Operating Numbers Diagram Circulating and Service Water System Surry Power Station Unit 1	15
		11548-FM-071A	Flow/Valve Operating Numbers Diagram Circulating and Service Water System Surry Power Station Unit 2	103
	Engineering Changes	Standing Order SO-19-002	Alternative Method to provide Flood Isolation of MER 3	May 2, 2019
	Fire Plans	0-FS-FP-225	Alternate AC Diesel Room - Construction Site Elev. 35 Feet	1
	Procedures	0-AP-13.00	Turbine Building or MER 3 Flooding	31
		0-EPM-0901-05	Mechanical Equipment Rooms 3 and 4 Smoke Detector Test	6
		0-FS-FP-162	Auxiliary Building Elevation 45 Feet - 10 Inches	4
		0-FS-FP-163	Fuel Building Elevation 6 Feet - 10 Inches and 15 Feet - 10 Inches	1
		0-FS-FP-164	Fuel Building Elevation 27 Feet - 6 Inches and 45 Feet - 10 Inches	3
		0-FS-FP-225	Alternate AC Diesel Room	1
Work Orders	38204187733	Mechanical Equipment Room 3 and Mechanical Equipment Room 4 Smoke Detector Test		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		38204187733	Mechanical Equipment Rooms 3 and 4 Smoke Detector Test	0
71111.11Q	Corrective Action Documents	CR1125393	Last minute EP Inject Message Request	
	Miscellaneous	EAL Matrix	Surry Power Station Emergency Action Level Matrix	4
	Procedures	2-OP-CH-007	Blender Operations	40
		2-OP-TM-005	Unit Ramping Operations	36
71111.12	Corrective Action Documents	CR1122082, CR1122157, CR1122159, CR1122199, CR1122272, CR1122337		
	Engineering Evaluations	S-PMTE-2002-011	Replace the mechanical seals on 1/2-CH-P-1A/B/C	9/11/2002
		S-PMTE-2005-0355	PM to replace mechanical seals	10/19/2005
	Procedures	0-MCM-0109-01	Charging Pump Overhaul	38
		0-MCM-0114-01	Emergency Service Water Pump Maintenance	29
		0-MCM-0417-52	William Powell Swing Check Valve Inspection and Overhaul Model 2342	11
		VPAP-1001	Quality Control (QC) Inspection Program	20
	Work Orders	38077550701	Emergency Service Water Pump 1-SW-P-1B Replacement and Testing	April 30, 2019
		38103275045	0-NSP-BS-005 1825 Day Freq. PT: Monitoring of Structures	11/26/2018
	71111.13	Corrective Action Documents	CR1124809	High pressure feedwater heater '1B' moisture separator drain tank normal level control valve erratic operation
Miscellaneous			Radiological Risk Screening Worksheet for NUHOMS cask campaign	dated 2/25/2019
		EOOS Schedulers Risk Evaluation for Surry Power Station		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		EOOS Schedulers Risk Evaluation for Surry Power Station		April 18, 2019
	Procedures	0-DRP-049	Time Critical Operator Actions	16
	Work Orders	38204199267		
71111.15	Corrective Action Documents	CR1122509, CR1122600, CR1122662, CR1122689	1-SW-P-1B High Vibrations	
		CR1124848	Main Control Room Chiller '4A' Failure to Start, first attempted start since 2017	06/11/2019
		CR112529	Failure to complete diagnosis of fire due to performance of parallel Time Critical Operator Actions	06/26/2019
		CR1125718	Delayed Undervoltage Light during Unit 2 Train A Reactor Protection Logic Testing	06/25/2019
	Operability Evaluations	Engineering Logs	1-SW-P-1B ESW Pump high vibrations.	May 7, 2019
		Station Narrative Log Follow-ups for CR1122159	Degradation of 1-SW-P-1B Foundation Rebar and Concrete Degradation	May 1 and 2, 2019
	Procedures	OP-AA-102	Operability Determination	15
71111.18	Calculations	CE-2056	Surry Emergency Service Water Pump Heavy Load Rigging & Load Drop Evaluation for 01-SW-P-1A, 01-SW-P-1B, & 01-SW-P-1C	0
	Engineering Changes	S1-17-155	Emergency Service Water Pump Fuel Oil Line Jumper	3
		SU-19-00112	Emergency Service Water Pump House Flood Protection Restoration Following Postulated Load Drop of 1-SW-P-1B	0
	Engineering Evaluations	ETE-SU-2019-0008	Emergency Service Water Pump NUREG-0612 Heavy Load Requirements	0
		ETE-SU-2019-1007	Repair Disposition for 1-SW-P-1B Pump Pit Plate	0
71111.19	Corrective Action Documents	CR1121088	Interlock switch for 2-MS-TV-4 found out of adjustment.	April 17, 2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CR1122502, CR1122504, CR1122558, CR1122559, CR1122572, CR1122744	Pushbutton start needs reset, throttle linkage repair, 1-SW-P-1B packing leakage, fuel filter leak, loose base plate bolts	
	Drawings	11448-FM-072D	Flow/Valve Operating Numbers Diagram Component Cooling Water System, Sheets 1 and 2	32 and 37 respectively
	Procedures	0-MCM-0107-01	Component Cooling Pump Maintenance	13
		0-MCM-0417-52	William Powell Swing Check Valve Inspection and Overhaul Model 2342	11
		0-OP-AAC-001	AAC Diesel Generator Operation	30
		0-OPT-SW-002	Emergency Service Water Pump 1-SW-P-1B	68
		0-OPT-SW-008	Emergency Service Water Pump 1-SW-P-1B Comprehensive Test	27
		1-PT-18.8	Charging Pump Service Water Performance	38
		1-PT-41.1	Component Cooling Water Pumps Performance Test	35
		2-OSP-TM-001	Turbine Inlet Valve Freedom Test	46
	Work Orders	2-PT-8.1	Reactor Protection System Logic (for Normal Operations)	40
		38103680975		
		38103680975	Unit 2 Turbine Stop Valve Interlock Verification	0
		38103711862 and 38103401882		
		38204192362 38204199804		06/26/2019
71111.22	Corrective Action Documents	CR1120556, CR1120552		
	Corrective Action Documents Resulting from Inspection	CR1120807	Non-ISI elevated vibes Point 9	
		CR1120821	1-CS-115 externally leaking by	
		CR1120834	1-CS-PP-1B Pump seal drain boric acid accumulation.	
Engineering Changes	SU-13-01025	Implementation of the Beyond Design Basis Diverse and Flexible Coping Strategies (FLEX) Program	06/16/2014	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Engineering Evaluations	ETE-CPR-2014-1002	Site Acceptance Testing (SAT) and Periodic Performance Verification Testing Acceptance Criteria for BDB FLEX Strategy Pumps - North Anna 1&2 and Surry 1&2	2
	Procedures	0-MPM-1960-01	Semi-Annual or Annual Test of BDB Flex Equipment	15
		0-NSP-CW-006	Canal Level Probe Removal, Inspection and Cleaning	6
		0-OP-BDB-003	BDB 120/240 VAC Generator Operator Aid	1
		0-OP-BDB-007	BDB High Capacity Pump Operating Aid	0
		1-FSG-1	Long Term RCS Inventory Control	4
		1-FSG-8	Alternate RCS Boration	4
		1-OPT-CH-002	Charging Pump Operability and Performance Test for 1-CH-P-1B	59
		1-OPT-CS-002	Containment Spray System Test	18
		2-OPT-EG-001	Number 2 Emergency Diesel Generator Monthly Start Exercise Test	77
2-OPT-SI-005	LHSI Pump Test	34		
71114.06	Corrective Action Documents	CR1125343	SJUN19FS Obj 4 (Notifications) Met with Problem	
		CR1125452	SJUN19FS Obj 20 (Exercise Conduct) Met with Problem	
	Procedures	EPIP-1.01	Emergency Manager Controlling Procedure	60
		EPIP-3.06	Corporate Emergency Response Center Activation	0
		EPIP-3.10	CERC Technical Support Controlling Procedure	0
EPIP-4.36	CERC Accident Assessment Controlling Procedure	0		
71151	Miscellaneous		1Q/2019 Performance Indicators - Surry 1 and 2 - Reactor Coolant System Leakage	06/25/2019
			1Q/2019 Performance Indicators - Surry 1 and 2 - Safety System Functional Failures	06/25/2019
			Unit 2 Control Room Narrative Log, 04/01/2018 - 3/31/2019	
			1Q/2019 Performance Indicators - Surry 1 and 2 - Reactor Coolant System Activity	06/25/2019
			Unit 1 Control Room Narrative Log, 04/01/2018 - 3/31/2019	
		NEI 99-02	Regulatory Assessment Performance Indicator Guideline	7
71152	Corrective Action Documents	CA7489560		
		CR015505, CR020890,		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CR021127, CR572210, CR1044721, CR1116262, and CA018234		
		CR1114023		
	Corrective Action Documents Resulting from Inspection	CR1121189	Evaluate OPS aggregate impact based on NRC observations and recommendations.	April 18, 2019
		CR1121192	Self assessments for OP-AA-1700 (OAI) not performed from 2011 to 2017.	April 18, 2019
	Miscellaneous		Equipment Reliability Top 10 Focus Items	04/23/2019
			Equipment Reliability Top 10 Focus Items	01/22/2019
		OAI	Units 1 and 2 Operations Aggregate Impact	March 1 and April 1, 2019
		RO Logs	Units 1 and 2 RO Abnormal Status Reports	April 4, 2019
		SPS Units 1 and 2 Technical Specifications	TS 3.1 Reactor Coolant System	Amendment 250 and 251
		SPS Units 1 and 2 UFSAR	4.2.7 Leakage	50
	Procedures	0-OP-BR-001	Boron Recovery Tank Transfer to the Surry Radwaste Facility	11
		1-OP-ZZ-002	Maintenance of Plant Operations	36
		OP-AA-1700	Operations Aggregate Impact	8
	Self-Assessments	PIR1074492	Informal Self-Assessment on Surry Power Station's Operations Aggregate Impact	February 2017
	Work Orders	38052036702	Valve 01-CC-573 Replacement	
		38078187402	Valve 2-CC-322 Replacement	
		38103686836	Valve 01-BR-145 Bonnet Overhaul	
		38204193252	Actuator / Valve Overhaul	