



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

April 13, 2021

Mr. James Barstow
Vice President, Nuclear Regulatory Affairs and Support Services
Tennessee Valley Authority
1101 Market Street, LP 4A-C
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR – TRIENNIAL FIRE PROTECTION INSPECTION REPORT
05000390/2021011 AND 05000391/2021011

Dear Mr. Barstow:

On February 25, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Watts Bar and discussed the results of this inspection with Mr. Anthony Williams and other members of your staff. The results of this inspection are documented in the enclosed report.

Two findings of very low safety significance (Green) are documented in this report. Two of these findings involved violations of NRC requirements. We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations 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 Watts Bar.

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 Watts Bar.

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/

Scott M. Shaeffer, Chief
Engineering Branch 2
Division of Reactor Safety

Docket Nos. 05000390 and 05000391
License Nos. NPF-90 and NPF-96

Enclosure:
As stated

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SUBJECT: WATTS BAR – TRIENNIAL FIRE PROTECTION INSPECTION REPORT
05000390/2021011 AND 05000391/2021011 dated April 13, 2021

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ADAMS ACCESSION NUMBER: **ML21103A254**

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers: 05000390 and 05000391

License Numbers: NPF-90 and NPF-96

Report Numbers: 05000390/2021011 and 05000391/2021011

Enterprise Identifier: I-2021-011-0033

Licensee: Tennessee Valley Authority

Facility: Watts Bar

Location: Spring City, TN

Inspection Dates: February 01, 2021 to February 25, 2021

Inspectors: J. Dymek, Reactor Inspector
W. Monk, Senior Reactor Inspector
J. Montgomery, Senior Reactor Inspector
D. Strickland, Reactor Inspector

Approved By: Scott M. Shaeffer, Chief
Engineering Branch 2
Division of Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a triennial fire protection inspection at Watts Bar, 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

Inadequate Sprinkler System Surveillance Requirement - Heavy Loading on 480V Transformer Rooms Sprinkler Heads			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000390,05000391/2021011-01 Open/Closed	[H.1] - Resources	71111.21N.05
The inspectors identified a Green finding and associated Non-cited violation (NCV) of Watts Bar Nuclear Plant Technical Specifications (TS) 5.7.1.1 when the licensee failed to properly establish and/or follow surveillance procedures for inspection of credited fire suppression systems.			

Inadequate Fire Safe Shutdown Analysis for FZ 737.0-A3			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000390/2021011-02 Open/Closed	None (NPP)	71111.21N.05
The inspectors identified a Green finding and associated Non-cited violation (NCV) of Watts Bar Nuclear Plant Unit 1 Operating License Condition 2.F when the licensee failed to provide an adequate 10 CFR Part 50, Appendix R Fire Safe Shutdown (FSSD) evaluation.			

Additional Tracking Items

None.

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.

REACTOR SAFETY

71111.21N.05 - Fire Protection Team Inspection (FPTI)

Structures, Systems, and Components (SSCs) Credited for Fire Prevention, Detection, Suppression, or Post-Fire Safe Shutdown Review (IP Section 03.01) (4 Samples)

The inspectors verified that components and/or systems will function as required to support the credited functions stated for each sample. Additional inspection considerations are located in the fire hazards analysis (FHA) or safe shutdown analysis (SSA).

- (1)
 - a. Review deficiencies or open fire protection impairments for the selected system, including any temporary modifications, operator workarounds, or compensatory measures.
 - b. Verify that operator actions can be accomplished as assumed in the licensee's FHA, or as assumed in the licensee's fire probabilistic risk assessment (FPRA) analysis and SSA.
 - c. Review repetitive or similar maintenance work requests which could be an indicator of a design deficiency and could affect the ability of the components to perform their functions, when needed.
 - d. Ensure that post maintenance and/or surveillance activities are performed as scheduled.
 - e. Perform a walkdown inspection to identify equipment alignment discrepancies. Inspect for deficient conditions such as corrosion, missing fasteners, cracks, and degraded insulation.
 - f. Ensure the selected SSCs that are subject to aging management review (AMR) pursuant to 10 CFR Part 54 are being managed for aging (e.g., loss of material, cracking, reduction of heat transfer) in accordance with appropriate aging management programs. Verify that the licensee's aging management program activities (such as, Fuel Oil Analysis or Selective Leaching Aging Management Program) associated with FP equipment are being implemented.
 - g. If a review of operating experience issues will be completed for the selected inspection sample, verify that the licensee adequately reviewed and dispositioned the operating experience in accordance with their processes.

The team selected the following SSCs as samples:

- Automatic Preaction Sprinkler System in room 772.0-A2 (480V Board Room 1B)

- (2) • CO2 Suppression System in room 708.0-C1 (Unit 1 Auxiliary Instrument Room)
- (3) • Unit 1 Component Cooling Water System (CCS)
- (4) • Unit 1 480VAC Shutdown Power System

Fire Protection Program Administrative Controls (IP Section 03.02) (1 Sample)

The inspectors verified that the following fire protection program administrative control was implemented in accordance with the licensee's current licensing basis. The inspectors ensured that the licensee's FPP contained adequate procedures to implement the selected administrative control. The team also verified that the selected administrative control met the requirements of all committed industry standards.

- (1) • Fire Brigade Training Program

Fire Protection Program Changes/Modifications (IP Section 03.03) (2 Samples)

The inspectors reviewed the following changes to ensure that they did not constitute an adverse effect on the ability to safely shutdown post-fire, to verify that fire protection program documents and procedures affected by the changes were updated, and to verify that post-fire SSD operating procedures, such as abnormal operating procedures, affected by the modification were updated:

- (1) • DC WBN-18-126, Rev. 1 - Resolve Appendix R Concern Associated with Steam Generator PORV Cables
- (2) • RIS 2005-07 evaluation for CR 1574031, 2-FCV-1-109 Failure

INSPECTION RESULTS

Inadequate Sprinkler System Surveillance Requirement - Heavy Loading on 480V Transformer Rooms Sprinkler Heads			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000390,05000391/2021011-01 Open/Closed	[H.1] - Resources	71111.21N.05
The inspectors identified a Green finding and associated Non-cited violation (NCV) of Watts Bar Nuclear Plant Technical Specifications (TS) 5.7.1.1 when the licensee failed to properly establish and/or follow surveillance procedures for inspection of credited fire suppression systems.			

Description: During walk downs of the 480V Transformer Rooms, NRC inspectors identified thick dust accumulation present on the majority of the sprinkler heads above and surrounding each 480V transformer. Above each of the 480V transformers are large air vents that expel air from the rooms to the outside. These large air vents contribute to a high air flow in the area that results in dust and particulate matter being moved throughout the space, and some of this dust and particulate matter landing on the sprinkler heads. The physical presence of the dust accumulation created two concerns. First, the thermal insulating effect of the dust surrounding the heads' fusible link could impact the response time index (RTI) of the sprinkler head by delaying the time required for the link to heat up to the designed melting temperature to allow water to be released from the head. Second, the loading on the heads could impede the ability of the licensee to visually verify the acceptance criteria of the surveillance requirement.

Functionality of this sprinkler system was verified using procedure 0-FOR-26-3, "18 Month Inspection of Fire Protection Sprinkler Systems in Accessible Safety-Related Areas." The procedure visually checks for signs of corrosion, paint, and physical damage of the heads. Thick dust accumulation on the sprinkler heads created a material condition deficiency that impeded the ability to visibly verify the acceptance criteria of the surveillance. The procedure was not properly established because no specific steps, acceptance criteria, nor inspection guidance was provided to ensure that sprinkler heads were free of loading of foreign materials, or, the procedure was not adequately followed. The surveillance's acceptance criteria could not be met because the sprinkler heads were coated in a thick layer of dust/debris, which prevented the licensee staff from visually verifying the acceptance criteria of the surveillance requirement.

Most likely, the dust coating on the sprinkler heads had been present for a significant time period, and present during the last performance of the surveillance. The last two surveillances were completed in August 2019 and April 2018 with no sprinkler head issues of concern noted.

Corrective Actions: The licensee took actions to clean the fire suppression sprinkler heads in the 480V Transformer Rooms by compressed air to remove the heavy loading condition. Additionally, extent of condition walkdowns were performed by the licensee to check the plant's other fire suppression systems for this heavy loading material condition deficiency. An additional CR was generated by the licensee in order to correct dust loading issues on the Unit 1 Air Intake Rooms sprinkler heads.

The licensee also wrote a CR to revise surveillance procedure 0-FOR-26-3 to provide additional guidance for the acceptance criteria to ensure sprinkler heads are free of debris, obstructions, dust accumulation, etc. and that the fusible link elements within the sprinkler heads are physically visible to allow verification of the surveillance's acceptance criteria.

Corrective Action References: CR 1669215, Sprinkler Heads Need to be Cleaned in 480V Transformer Rooms, 2/4/2021; CR 1670295, Impaired Sprinkler Heads in 480V Transformer Rooms, 2/9/2021; CR 1671391, During 0-TI-211 Walkdown in the U-1 Air Intake Rooms EL.737, 2/14/2021; CR 1671940, 2021 TFPI Dust on Sprinkler Head in 480V Transformer Room 1A, 2/16/2021; CR 1674388, 2021 TFPI - Enhancement Needed to 0-FOR-26-3, 2/25/2021

Performance Assessment:

Performance Deficiency: The licensee's failure to properly establish and/or follow surveillance procedures for inspection of credited fire suppression systems was a performance deficiency. Specifically, surveillance test procedure 0-FOR-26-3 did not contain specific steps, acceptance criteria, nor inspection guidance to ensure that sprinkler heads were free of loading of foreign materials.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Procedure Quality 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 surveillance procedure used by plant staff to inspect the sprinkler heads lacked sufficient detail and inspection guidance to ensure all relevant as-found material conditions would be considered and evaluated to meet the licensee's Fire Protection Plan (FPP) testing and inspection requirement 14.3.d, which could increase the likelihood of a sprinkler system becoming degraded or nonfunctional to respond to a fire initiating event.

Significance: The inspectors assessed the significance of the finding using Appendix F, "Fire Protection and Post - Fire Safe Shutdown SDP." Using IMC 0609, Appendix F, Fire Protection SDP the inspectors screened this issue as Green, because the inspectors determined the PD constituted low degradation of the fire suppression system. This low degradation is based on the fact that the fire protection sprinkler heads were not obstructed by the loading to the point of limiting water flow through the heads, but the sprinkler heads would have been delayed in the activation time for the water to begin flowing due to the heavy loading impacting the fusible link's response time index (RTI). Additionally, in considering quantitative risk insights, given the circumstances of a fire in the affected areas, the Phase 2 SDP would give no credit for the suppression systems, even if they were fully functional and non-degraded. Therefore, the safety significance of this violation screens to Green, very low safety significance.

Cross-Cutting Aspect: H.1 - Resources: Leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, leaders did not ensure adequate surveillance procedures and other resources, such as proper training for completing sprinkler head surveillances and specifically detailing the physical conditions which constitute adequate sprinkler head acceptance criteria.

Enforcement:

Violation: Watts Bar Nuclear Plant Technical Specifications Section 5.7.1.1 states that written procedures shall be established, implemented, and maintained covering fire protection program implementation.

Contrary to the above, the licensee failed to establish and implement adequate procedures covering fire protection program implementation. Specifically, procedure 0-FOR-26-3 was not properly established due to no specific steps, criteria, or guidance being given to ensure that sprinkler heads were free of loading of foreign materials. This resulted in sprinkler heads in the 1A, 1B, and 2B 480V Transformer Rooms containing a significant amount of loading of foreign material that was not discovered during the required surveillance –last completed in August 2019 and April 2018 with no sprinkler head problems noted.

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

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Inadequate Fire Safe Shutdown Analysis for FZ 737.0-A3			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000390/2021011-02 Open/Closed	None (NPP)	71111.21N.05

The inspectors identified a Green finding and associated Non-cited violation (NCV) of Watts Bar Nuclear Plant Unit 1 Operating License Condition 2.F when the licensee failed to provide an adequate 10 CFR Part 50, Appendix R Fire Safe Shutdown (FSSD) evaluation.

Description: On February 16, 2021, the NRC inspectors walked down the credited fire protection wrap of the Component Cooling System (CCS) Pump 1-B power cables 1PL4742B & 1PL4743B inside the Unit 1 Heat and Vent Room (FZ 737.0-A3) and identified that the 480Vac power cables for CCS Pump 1-B were not fire wrapped for the entirety of the room as stated and analyzed in the site's Fire Safe Shutdown Analysis (SSA) for Analysis Volume (AV) 39, which corresponds with FZ 737.0-A3. For CCS pump 1B-B, the SSA stated, "Cables (1PL4742B & 1PL4743B) for CCS pump 1B-B (1-MTR-70-38-B) are being protected. Cables 1PL4742B, 1PL4743B are wrapped in FZ 737-A3." When inspectors viewed these cables in FZ 737-A3, they found an approximate 10-foot section of the conduits containing the power cables that was not fire wrapped from the room's West wall, over the walkway, and then to Junction Box 4981 on the opposite side wall.

This credited cable wrap was installed as a part of DCN 52033, which commenced in 2006. This DCN included numerous physical plant modifications and calculation changes to address fire protection issues. Inspectors determined that the DCN intended to install the fire wrap in the as-found configuration, and that the SSA would take credit for 20 feet of horizontal separation between the 1A-A CCS pump cables and the 1B-B CCS pump cables. However, the SSA erroneously documented that the cables for the 1B-B pump were protected with fire wrap throughout the entire room.

Because of this assumption, the SSA credited the CCS Pump 1B-B as being available for any fire scenario within the room, and assumed the 1A-A pump was failed for the entire room; therefore, the operator action in SSD Procedure 0-AOI-30.2, Appendix C.39 was to start only the CCS Pump 1B-B from the Main Control Room (MCR). The missing operator action to ensure, either, the 1A-A or 1B-B pump was running could cause a fire SSD concern if the CCS Pump 1A-A was not running pre-fire and the fire location was where the CCS Pump Train B power cables were unprotected by fire wrap. Fire damage to the CCS Pump 1B-B unprotected cables could cause the pump breaker to trip, and without flow from CCS pump 1A-A to supply flow to the A CCS heat exchanger, there would be no cooling water for some of the plant's credited fire SSD components.

Corrective Actions: The licensee completed a system Functional Evaluation and determined the CCS was functional but degraded. Their engineering evaluation also determined that the Appendix R FSSD analysis needed to be corrected in order to credit 20-foot separation analysis for both the CCS Pumps' control circuit cables and add a MCR operator action to procedure 0-AOI-30.2 C.39 "Fire Safe Shutdown Rooms 737-A3" to start the CCS Pump 1-A from the MCR for a fire event inside FZ 737.0-A3 (AV-039). In summary, the FSSD analysis will credit separation between the two CCS pumps and ensure both pumps started from the

MCR ensuring that at least one of the CCS pumps provide water flow to the CCS "A" header and heat exchanger as required for FSSD.

Corrective Action References: CR 1672477, 2021 TFPI Missing Fire Wrap in 737.0-A3, 2/18/2021

Performance Assessment:

Performance Deficiency: The licensee's failure to provide an adequate safe shutdown analysis was a performance deficiency. Specifically, the inadequate procedure resulted in safe shutdown procedure 0-AOI-30.2, Appendix C.39 not containing a step to ensure flow through the A CCS heat exchanger.

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 inadequate safe shutdown analysis resulted in an inadequate safe shutdown operating procedure that could have adversely affected MCR operators' ability to safely shut the plant down in response to a fire in the U1 Heat and Vent Equipment Room (FZ 737.0-A3).

Significance: The inspectors assessed the significance of the finding using Appendix F, "Fire Protection Significance Determination Process." The initial review determined a Phase 2 quantitative screening approach was necessary because the finding had the potential to adversely affect the ability to reach and maintain hot shutdown/hot standby or safe and stable conditions using the credited safe shutdown success path. A regional Senior Reactor Analyst used SAPHIRE version 8.2.3 and Watts Bar SPAR model version 8.53 to perform an evaluation of the conditional core damage probability associated with the performance deficiency. The finding screened to Green, or very low safety significance, in Phase 2 at Step 2.5.4 of Attachment 1 to IMC 0609, Appendix F, because the screening increase in core damage frequency was less than 1E-06/year.

Cross-Cutting Aspect: Not Present Performance. No cross cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: Watts Bar Operating License Condition 2.F requires that the licensee shall implement and maintain in effect all provisions of the approved fire protection program, as described in the Fire Protection Report for Watts Bar Unit 1, as approved in Supplements 18 and 19 of the SER (NUREG-0847). Fire Protection Report, Part V, Section 2.2, "Unit 1 and Unit 2 Safe Shutdown Procedures" states, in part, the fire safe shutdown procedures contained in 0-AOI-30.2 were developed based on calculations EDQ00099920090012, "Unit 1 and 2 Appendix R Safe Shutdown Analysis" and EDQ00099920090016, "Manual Actions Required for Safe Shutdown Following a Fire".

Contrary to the above, since 2006, the licensee failed to perform an adequate calculation to support fire safe shutdown procedure 0-AOI-30.2. Specifically, for a fire in the U1 Heat and Vent Equipment Room, the licensee failed to ensure availability of CCS flow through the A heat exchanger because the analysis assumed the cables for the 1B-B CCS pump were fire wrapped for the entirety of the room. This oversight resulted in SSD procedure 0-AOI-30.2

C.39 being inadequate, as it only contained a step for operators to ensure the 1B-B pump was running and didn't account for the fact that a fire could possibly affect the credited 1B-B pump.

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 February 25, 2021, the inspectors presented the triennial fire protection inspection results to Mr. Anthony Williams and other members of the licensee staff.
- On March 23, 2021, the inspectors presented the SDP Update inspection results to Mr. Anthony Williams and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.05	Calculations	EPMTJH102192	CO2 Fire Protection System Required Quantity	Rev. 3
71111.21N.05	Calculations	MDQ00299920110381	Appendix R - Operator Manual Action Evaluations	11/03/2020
71111.21N.05	Corrective Action Documents	CR 1493412		02/26/2019
71111.21N.05	Corrective Action Documents	CR 1528769		07/02/2019
71111.21N.05	Corrective Action Documents	CR 1567251		11/21/2019
71111.21N.05	Corrective Action Documents	CR 5583	BASED ON A REVIEW OF NRC INFORMATION NOTICE 2002-24, WATTS BAR FIRE PROTECTION NEEDS TO EVAL	05/15/2003
71111.21N.05	Corrective Action Documents	PMCR 1409054	Change/Deferral Request for 480V SD BD Maintenance	03/02/2020
71111.21N.05	Corrective Action Documents	PMCR 1409054	PM Change/Deferral for 480 V SD BD Maintenance	03/02/2020
71111.21N.05	Corrective Action Documents	PMCR 1457157		11/25/2020
71111.21N.05	Corrective Action Documents	PMCR 1457158	PM Change/Deferral for 480 V SD BD Maintenance	11/25/2020
71111.21N.05	Corrective Action Documents Resulting from Inspection	1673842	NRC identified there is a typo on the pre-fire plan (PFP) AUX-0-772-03. The 4th bullet in the section for Special Considerations of Hazards should say East of Vital Battery Rm II instead of III.	2/23/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	1674388	As part of the 2021 TFPI dust was identified on various sprinklers. 0-FOR-26-3 should be revised to provide additional guidance for the acceptance criteria to ensure sprinklers are free of debris, dust, etc and fusible elements are visible. This guidance will enhance the procedure to provide clear guidance to support the inspectors performing this FOR.	2/25/2021
71111.21N.05	Corrective Action Documents	CR 1668538	2021 TFPI – NRC Identified. Material Left from Work Activities in the CSR	02/2/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Resulting from Inspection			
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1668539	2021 TFPI – NRC Identified – A Broom and Dustpan Left in the CSR	02/2/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1668540	2021 TFPI – NRC Identified – A Ladder and Metal Chair Found Un-restrained in CSR	02/2/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1668541	2021 TFPI – NRC Identified – The Trash Can in Computer Room was Over Filled	02/2/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1668542	2021 TFPI – NRC Identified – Fire Protection Signage Has Fallen Off the Wall and Laying in the Sink	02/2/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1669171	2021 TFPI - NRC Identified – Transient Combustible Left in the 480V Transformer Room 2A-A	02/4/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1669215	Sprinkler Heads Need to be Cleaned in 480V Transformer Rooms	02/4/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1670295	Impaired Sprinkler Heads in 480V Transformer Rooms	02/9/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1671389	During 0-TI-211 walk down in the U-1 HVAC & Air Intake rooms EL.737 Transients	02/16/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1671391	During 0-TI-211 walk down in the U-1 Air Intake rooms EL.737 Sprinkler Loading	02/14/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1671394	During 0-TI-211 walk down in the U-1 Air Intake room EL.737 Cob Webs	02/14/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1671395	During 0-TI-211 walk down in the U-2 HVAC & Air Intake rooms EL.737 Transients	02/16/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1671397	During 0-TI-211 walk down at the IPS Found Housekeeping Issues	02/16/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1671403	During 0-TI-211 walk down in the control Bldg. EL 692 Housekeeping Issues	02/16/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1671940	2021 TFPI Dust on Sprinkler Head in 480V Transformer Room 1A	02/16/2021
71111.21N.05	Corrective Action Documents Resulting from Inspection	CR 1672477	2021 TFPI Missing Fire Wrap in 737.0-A3	02/18/2021
71111.21N.05	Drawings	0-47W843-1	Flow Diagram CO2 Storage, Fire Protection and Purging System	Rev. 3
71111.21N.05	Drawings	0-47W850-2	Flow Diagram Fire Protection Raw Service Water	Rev. 6
71111.21N.05	Drawings	0-47W850-3	Flow Diagram Fire Protection Raw Service Water	Rev. 5
71111.21N.05	Drawings	0-47W850-5	Flow Diagram Fire Protection Raw Service Water	Rev. 3
71111.21N.05	Drawings	0-47W859-1	Mechanical Flow Diagram Component Cooling	09/18/2015

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			System	
71111.21N.05	Drawings	1-45W751-1	Wiring Diagrams for 480V REAC MOV BDS 1A1-A Single Line SH-1	09/22/1990
71111.21N.05	Drawings	1-45W751-2	Wiring Diagrams for 480V REAC MOV BD 1A1-A Single Line SH-2	09/22/1990
71111.21N.05	Drawings	1-47A243-703-0	ERFBS Schedule Room 737-A3 (A703)	Rev. 0
71111.21N.05	Drawings	1-47W859-2	Mechanical Flow Diagram Component Cooling System	01/5/1990
71111.21N.05	Drawings	2-47W801-1	Flow Diagram for Main and RHEAT Steam	Rev. 39
71111.21N.05	Drawings	45N824-7	Conduit & Grounding EL 713 1B CCS	Rev. 42
71111.21N.05	Drawings	46W402-1	Architectural Plan EL 629 & EL 708	Rev. 11
71111.21N.05	Drawings	46W402-2	Architectural Plan EL 729 & EL 755	Rev. 27
71111.21N.05	Drawings	47BM491-5-10	Units 1 and 2 Aux Building Fire Protection	06/28/1977
71111.21N.05	Drawings	47BM491-68	Watts Bar Nuclear Plant Unit 1 and 2 Auxiliary Building EI 729', 757' & 782' Fire Protection	Rev. 1
71111.21N.05	Drawings	47BM491-95	Watts Bar Nuclear Plant Unit 1 Auxiliary Building Fire Protection	Rev. 0
71111.21N.05	Drawings	47W491-31	Mechanical Fire Protection	Rev. 8
71111.21N.05	Drawings	47W491-33	Mechanical Fire Protection	Rev. 12
71111.21N.05	Drawings	47W491-37	Mechanical Fire Protection	Rev. 11
71111.21N.05	Drawings	47W491-62	Mechanical Fire Protection	Rev. 7
71111.21N.05	Drawings	47W491-82	Mechanical High Pressure Fire Protection	Rev. 1
71111.21N.05	Drawings	47W491-86	Mechanical High Pressure Fire Protection	Rev. 2
71111.21N.05	Drawings	47W491-87	Mechanical High Pressure Fire Protection	Rev. 1
71111.21N.05	Engineering Changes	DCN 52033		Rev. A
71111.21N.05	Engineering Changes	DCN 52033-A	CCS Pump Power Cable 20 Foot Separation	Rev. 6
71111.21N.05	Engineering Changes	DCN WBN-18-126	Resolve App R Concern Associated with Steam Generator PORV Cables	Rev. 1
71111.21N.05	Engineering Evaluations		Reverification and Revalidation of Appendix R Manual Operator Actions	04/15/2009
71111.21N.05	Engineering		RIS 05-07 Evaluation for CR 1574031 - 2 - FCV-1-	12/30/2019

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	Evaluations		109 Failure	
71111.21N.05	Engineering Evaluations	WBN-OSG4-165	Manual Actions Required for Safe Shutdown Following a Fire - 10 CFR Appendix R	Rev. 5
71111.21N.05	Fire Plans	CON-0-708-01	Unit 1 Auxiliary Instrument Room	Rev. 3
71111.21N.05	Fire Plans	WBN PreFire Plan	AUX-0-772-01	Rev. 1
71111.21N.05	Fire Plans	WBN PreFire Plan	AUX-0-772-03	Rev. 5
71111.21N.05	Miscellaneous		Vendor Purchase Contract Information for Fire Protection Equipment	08/18/1977
71111.21N.05	Miscellaneous	00010187 LMS NO.	Emergency Response Training Fire Brigade Membership	
71111.21N.05	Miscellaneous	00010188 ATIS LA. NO.	Emergency Response Training Fire Brigade leadership	Rev. 0
71111.21N.05	Miscellaneous	A21-0005	Transient Fire Load Permit - 5th Vital Battery Room	02/1/2021
71111.21N.05	Miscellaneous	DS-M17.2.2	Mechanical Design Standard-Electrical Raceway Fire Barrier Systems	Rev. 8
71111.21N.05	Miscellaneous	DS-M18.2.15	Fire Damper Application, Selection and Installation	Rev. 3
71111.21N.05	Miscellaneous	G-73	Installation, Modifications, and Maintenance of Fire Protection Systems and Features	Rev. 9
71111.21N.05	Miscellaneous	IN2002-24	Potential Problems with Heat Collectors on Fire Protection Sprinklers	2002
71111.21N.05	Miscellaneous	NFPA 12-1973	Carbon Dioxide Fire Extinguishing Systems	1973
71111.21N.05	Miscellaneous	NFPA 13-1975	Installation of Sprinklers	1975
71111.21N.05	Miscellaneous	NFPA 80-1975	Fire Doors and Windows	1975
71111.21N.05	Miscellaneous	NONE	Administrative Qualification Matrix Report for Fire Brigade Members	1/14/2021
71111.21N.05	Miscellaneous	NONE	UL Field Sample Testing of Automatic Sprinklers	6/01/2020
71111.21N.05	Miscellaneous	NONE	American Fire Sprinkler Association Sprinkler Age Publication "When is Loading Detrimental to Sprinkler Performance"	11/01/2017
71111.21N.05	Miscellaneous	NUREG-0847	Watts Bar Units 1 & 2 Safety Evaluation Report, Supplement No. 18	October 1995
71111.21N.05	Miscellaneous	SDD-N3-26-4002	High Pressure Fire Protection System Unit 1 / Unit 2	Rev. 21
71111.21N.05	Miscellaneous	SDD-N3-62-4001	Chemical and Volume Control System Unit 1/Unit 2	Rev. 38
71111.21N.05	Miscellaneous	Tennessee Valley	Watts Bar Nuclear Plant Fire Protection Report	Rev. 57

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		Authority		
71111.21N.05	Miscellaneous	WB-DC-40-62	Fire Protection	Rev. 5
71111.21N.05	Miscellaneous	WB-DC-40-62	Design Criteria Document Watts Bar Nuclear Plant Unit1/Unit2 Fire Protection	Rev. 5
71111.21N.05	Miscellaneous	WBN-DCD-40-51	Fire Protection of Safe Shutdown Capability	Rev. 8
71111.21N.05	Miscellaneous	WBN-VTD AS06-0310	Operation and Service Manual for ASCOA CO2 Storage Unit (24 Ton)	Rev. 0
71111.21N.05	Miscellaneous	WBN-VTD-AS06-0310	Operation and Service Manual for ASCOA Chemetron Cardox CO2 Storage Unit (24 Ton)	Rev. 0
71111.21N.05	Miscellaneous	WBN-VTD-W120-2352	6.9KV/480V SD BD Transformer Vendor Manual	Rev. 0
71111.21N.05	Procedures	0-AOI-30.1	Plant Fires	Rev. 11
71111.21N.05	Procedures	0-AOI-30.2 APP B	Fire Safe Shutdown Elevation Diagrams	Rev. 1
71111.21N.05	Procedures	0-AOI-30.2 C.36	Fire Safe Shutdown Rooms 737-A1A	Rev. 4
71111.21N.05	Procedures	0-AOI-30.2 C.39	Fire Safe Shutdown Rooms 737-A3	Rev. 1
71111.21N.05	Procedures	0-AOI-30.2 C.39	Fire Safe Shutdown Rooms 737-A3	Rev. 2
71111.21N.05	Procedures	0-AOI-30.2 C.69	Fire Safe Shutdown Room Control Building	Rev. 11
71111.21N.05	Procedures	0-FOR-13-636	18 Month Fire Detection And Suppression Test For Panel L636	Rev. 14
71111.21N.05	Procedures	0-FOR-26-3	18 Month Inspection of Fire Protection Sprinkler Systems in Accessible Safety-Related Areas	Rev. 13
71111.21N.05	Procedures	0-MI-57.015	Taping Of Electrical Terminations And Splices	Rev. 0
71111.21N.05	Procedures	0-PI-OPS-1-FP	Freeze Protection	Rev. 27
71111.21N.05	Procedures	0-TI-2018	Demonstration of Appendix R Actions	Rev. 1
71111.21N.05	Procedures	0-TI-211	Fire Protection Weekly Walkdown	Rev. 1
71111.21N.05	Procedures	FPDP-1	Conduct of Fire Operations	Rev. 9
71111.21N.05	Procedures	FPDP-5	Development and Evaluation of Fire Drills	Rev. 6
71111.21N.05	Procedures	NEDP-22	Operability Determinations and Functionality Evaluations	Rev. 21
71111.21N.05	Procedures	NPG-SPP-01.3	Housekeeping	Rev. 8
71111.21N.05	Procedures	NPG-SPP-06.2	Preventive Maintenance	Rev. 13
71111.21N.05	Procedures	NPG-SPP-18.4.5	Fire Protection Quality Assurance	Rev. 3
71111.21N.05	Procedures	NPG-SPP-18.4.7	Control of Transient Combustibles	Rev. 13

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71111.21N.05	Procedures	TPD-FBT	Fleet Fire Brigade Training Program	Rev. 6
71111.21N.05	Procedures	TRN-33	Fire Protection Employee Qualifications	Rev. 4
71111.21N.05	Procedures	WB-DC-30-13	10CFR50, App R, Type I, II, and III Circuits - Unit 1 / Unit 2	Rev. 10
71111.21N.05	Procedures	WB-DC-30-27	AC AND DC CONTROL POWER SYSTEMS - (UNIT 1 / UNIT 2)	Rev. 35
71111.21N.05	Procedures	WB-DC-30-28	LOW AND MEDIUM VOLTAGE POWER SYSTEMS - UNIT 1 / UNIT 2	Rev. 23
71111.21N.05	Work Orders		Thermal Barrier Booster Pump Inspection and Maintenance	06/04/2019
71111.21N.05	Work Orders	10-812441-000	Inspection of Switchgear Bus and MCC Perform MI-57.200	04/21/2011
71111.21N.05	Work Orders	112794763	Inspection of Switchgear Bus and MCC Perform MI-57.200	03/20/2012
71111.21N.05	Work Orders	117351301	480V SD BD Relay Functional Test	11/10/2017
71111.21N.05	Work Orders	117640933	Fire Damper (Internal) Visual Inspection-Auxiliary, Control and Diesel Generator Building	9/17/2016
71111.21N.05	Work Orders	118562379	Fire Damper (Internal) Visual Inspection - Auxiliary Control and Diesel Generator Building	11/14/2017
71111.21N.05	Work Orders	118586915	18 Month CO2 Fire Protection Inspection and Test for Power House Areas	12/31/2017
71111.21N.05	Work Orders	118802289	3 Year HPFP Hydraulic Performance Verification	2/15/2018
71111.21N.05	Work Orders	118802306	18 Month Inspection of HPFP Sprinkler Systems in Accessible Safety Related Areas	10/25/2018
71111.21N.05	Work Orders	119326030	3 Year HPFP Hydraulic Performance Verification	5/23/2019
71111.21N.05	Work Orders	119425287	Fire Damper (Internal) Visual Inspection - Auxiliary, Control and Diesel Generator Building	11/14/2018
71111.21N.05	Work Orders	119837881	18 Month CO2 Fire Protection Inspection and Test for Power House Areas	4/06/2019
71111.21N.05	Work Orders	120164870	18 Month Inspection of the HPFP Sprinkler Systems in Accessible Safety Related Areas	10/18/2019
71111.21N.05	Work Orders	120164871	0-FOR-13-636 18 Month Fire Detection and Suppression Test For Panel L636	8/28/2018
71111.21N.05	Work Orders	120240570	Component Cooling System Heat Exchanger A	05/07/2020

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			Performance Test	
71111.21N.05	Work Orders	120804252	Thermal Barrier Booster PMPS and MTRS CCS 1B-B Inspection and Maintenance	07/13/2020
71111.21N.05	Work Orders	120903626	Quarterly CO2 Flow Path Verification	6/15/2020
71111.21N.05	Work Orders	120903676	Component Cooling System Thermal Barrier Booster Pump 1B Quarterly Performance Test	06/13/2020
71111.21N.05	Work Orders	12110034	Quarterly CO2 Flow Path Verification	9/14/2020
71111.21N.05	Work Orders	121162048	Component Cooling System Pump 1A-A Quarterly Performance Test	10/09/2020
71111.21N.05	Work Orders	121162073	Weekly CO2 Storage Tank Level Verification	10/26/2020
71111.21N.05	Work Orders	121162075	Weekly Storage Tank Level Verification	11/02/2929
71111.21N.05	Work Orders	121233592	Component Flow Debris/Foreign Material Testing Utilizing Ultrasonic ERCW - (Train A)	11/19/2020
71111.21N.05	Work Orders	121413261	Weekly CO2 Storage Tank Level Verification	2/08/2021
71111.21N.05	Work Orders	121924401	Sprinkler heads need to be cleaned in 480V Transformer rooms	2/10/2021
71111.21N.05	Work Orders	WO 121359676	TI-211 Fire Protection Weekly Inspection Report	01/18/2021
71111.21N.05	Work Orders	WO 121359678	TI-211 Fire Protection Weekly Inspection Report	01/26/2021
71111.21N.05	Work Orders	WO 121413380	TI-211 Fire Protection Weekly Inspection Report	01/31/2021