



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION IV  
1600 EAST LAMAR BOULEVARD  
ARLINGTON, TEXAS 76011-4511

February 3, 2022

Mr. Robert Franssen, Site Vice President  
Entergy Operations, Inc.  
Grand Gulf Nuclear Station  
P.O. Box 756  
Port Gibson, MS 39150

**SUBJECT: AMENDED - GRAND GULF NUCLEAR STATION – TRIENNIAL FIRE  
PROTECTION INSPECTION REPORT 05000416/2020013 AND NOTICE OF  
VIOLATION**

Dear Mr. Franssen:

The NRC is issuing this revision to the subject report to accurately reflect the number of samples that were performed under Inspection Procedure 71111.21N.05, Section 03.01 contained in NRC Inspection Report 05000416/2020013, dated December 3, 2020 (ADAMS Accession No. ML20338A271). This section of the original report indicated that two partial samples and four complete samples were documented. This section has been amended to indicate that four partial and zero complete samples were documented.

On November 5, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Grand Gulf Nuclear Station and discussed the results of this inspection with Mr. Brad Wertz, General Manager Plant Operations, and other members of your staff. The results of this inspection are documented in the enclosed report.

Enclosure 2 discusses a violation associated with a finding of very low safety significance (Green). The NRC evaluated this violation in accordance Section 2.3.2 of the NRC Enforcement Policy, which can be found at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The violation is cited in Enclosure 1, Notice of Violation (Notice), and the circumstances surrounding it are described in detail in the subject inspection report (Enclosure 2). The violation is being cited in the Notice because it did not meet the criteria to be treated as a non-cited violation (NCV) since your staff did not restore compliance within a reasonable period of time after a violation was previously identified by the NRC as NCV 05000416/2017008-01, "Untimely Corrective Action."

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC review of your response to the Notice will also determine whether further enforcement action is necessary to ensure your compliance with regulatory requirements.

If you contest the violation or the significance or severity of the violation documented in Enclosure 1, 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 Director, Division of Reactor Safety, Region IV; the Director, Office of Enforcement; and the NRC Resident Inspector at Grand Gulf Nuclear Station and emailed to [R4Enforcement@nrc.gov](mailto:R4Enforcement@nrc.gov).

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 IV; and the NRC Resident Inspector at Grand Gulf Nuclear Station.

This letter, its enclosures, and your response 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,



Signed by Siwy, Andrew  
on 02/03/22

Andrew D. Siwy, Chief  
Engineering Branch 2  
Division of Reactor Safety

Docket No. 05000416  
License No. NPF-29

Enclosures:

1. Notice of Violation
2. Inspection Report 05000416/2020013

AMENDED - GRAND GULF NUCLEAR STATION – TRIENNIAL FIRE PROTECTION  
INSPECTION REPORT 05000416/2020013 AND NOTICE OF VIOLATION DATED –  
FEBRUARY 3, 2022

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## NOTICE OF VIOLATION

Entergy Operations, Inc.  
Grand Gulf Nuclear Station

Docket No. 50-416  
License No.: NPF-29

During an NRC inspection conducted from August 10–28, 2020, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

License Condition 2.C.(41) requires, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in Revision 5 to the Updated Final Safety Analysis Report and as approved in the Safety Evaluations, dated August 23, 1991, and September 29, 2006.

Updated Final Safety Analysis Report, Section 9.5.1.3 states, in part, that, as noted in the Safety Evaluation Report (NUREG 0831), the NRC staff's Safety Evaluation Report concluded, based on evaluation of the fire protection program and related commitments, that the fire protection program meets the applicable guidelines of Branch Technical Position APCSB 9.5-1, dated August 23, 1978.

Branch Technical Position APCSB 9.5-1, Position C.8, states, in part, that measures should be established to assure that conditions adverse to fire protection are promptly identified and corrected.

Contrary to the above, from August 2011 to September 17, 2020, the licensee failed to promptly correct a condition adverse to fire protection. Specifically, the licensee failed to complete corrective actions for multiple spurious operation concerns identified in 2011 and documented as non-cited violation, NCV 05000416/2017008-01, "Untimely Corrective Action." The licensee failed to incorporate operator manual actions into the post-fire safe shutdown procedure.

This violation is associated with a Green Significance Determination Process finding.

Pursuant to the provisions of 10 CFR 2.201, Entergy Operations, Inc., is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Director, Division of Reactor Safety, U.S. Nuclear Regulatory Commission, Region IV, 1600 East Lamar Blvd., Arlington, Texas 76011-4511, and a copy to the NRC Resident Inspector at the Grand Gulf Nuclear Station, and emailed to [R4Enforcement@nrc.gov](mailto:R4Enforcement@nrc.gov) within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for the violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken; and (4) the date when full compliance will be achieved.

Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued requiring information as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Your response will be made available electronically for public inspection in the NRC Public Document Room or in the NRC's ADAMS, accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. Therefore, to the extent possible, the response should not include any personal privacy or proprietary information so that it can be made available to the public without redaction.

If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material is withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information).

Dated this 3rd day of December 2020

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

Docket Number: 05000416

License Number: NPF-29

Report Number: 05000416/2020013

Enterprise Identifier: I-2020-013-0006

Licensee: Entergy Operations, Inc.

Facility: Grand Gulf Nuclear Station

Location: Port Gibson, MS

Inspection Dates: August 10, 2020, to August 28, 2020

Inspectors: S. Alferink, Reactor Inspector  
S. Graves, Senior Reactor Inspector  
N. Okonkwo, Reactor Inspector, Team Lead

Approved By: Nicholas H. Taylor, Chief  
Engineering Branch 2  
Division of Reactor Safety

## SUMMARY

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

Untimely Corrective Actions Associated with Multiple Spurious Operations			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NOV 05000416/2020013-01 Open	[H.1] - Resources	71111.21N.05
The team identified a Green violation of License Condition 2.C.(41) for the failure to correct a condition adverse to fire protection in a timely manner. Specifically, the licensee failed to complete corrective actions for multiple spurious operations concerns previously identified in 2011, for which non-cited violation NCV 05000416/2017008-01 was issued in 2017.			

### 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. 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), inspectors were directed to begin telework. In addition, regional baseline inspections were evaluated to determine if all or 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

### 71111.21N.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 partial 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). All sections of 03.01 were completed for the following samples except subsections b and e.

Subsection b states “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.” Subsection e states “Perform a walkdown inspection to identify equipment alignment discrepancies. Inspect for deficient conditions such as corrosion, missing fasteners, cracks, and degraded insulation.” Due to conditions related to COVID19 in the area of the licensee, onsite inspector walkdowns of procedures with licensee operations personnel could not be performed at this time. An inspector will visit the licensee’s site to perform this activity at a later date. The results of the additional inspection will be documented in a resident inspector’s quarterly report.

- (1) (Partial)  
Fire suppression and detection in Fire Area 11, Auxiliary Building, 139 Ft Elevation (Fire Zone CA201)
- (2) (Partial)  
Low Pressure Coolant Injection (LPCI) System (LPCI injection valve IE12-F042A)
- (3) (Partial)  
Fire Suppression and detection in Fire Area 31, Switchgear Room (Fire Zone OC202)
- (4) (Partial)  
Fire Suppression System – CO2 Cardox System



### Fire Protection Program Administrative Controls (IP Section 03.02) (2 Samples)

The inspectors verified that the following fire protection program administrative controls were implemented in accordance with the current licensing basis:

- (1) The inspectors reviewed the licensee's control of transient combustibles, fire impairments and compensatory measures.
- (2) The inspectors reviewed procedures for fire protection program changes, fire brigade training, procedures, drills, and qualifications.

### 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 and to verify that fire protection program documents and procedures affected by the changes were updated.

- (1) The inspectors reviewed EC 73397- Revised Engineering Report GGNS-EE-11-0001, GGNS Appendix R Safe Shutdown Analysis, and EC 86851- Appendix R Updates to Address Non-Cited Violations from the 2017 NRC Triennial Fire Protection Inspection to address the multiple spurious operations (MSO) items.
- (2) The inspectors reviewed engineering change EC 79268 - Power Generation Control Complex (PGCC) Halon 1301 Fire Protection System Replacement.

## **INSPECTION RESULTS**

Untimely Corrective Actions Associated with Multiple Spurious Operations			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NOV 05000416/2020013-01 Open	[H.1] - Resources	71111.21N.05
The team identified a Green violation of License Condition 2.C.(41) for the failure to correct a condition adverse to fire protection in a timely manner. Specifically, the licensee failed to complete corrective actions for multiple spurious operations concerns previously identified in 2011, for which non-cited violation NCV 05000416/2017008-01 was issued in 2017.			
<p><b>Description:</b> In 2011, the licensee convened an expert panel to evaluate multiple spurious operations scenarios identified in NEI 00-01, "Guidance for Post Fire Safe Shutdown Circuit Analysis," Revision 3. The panel identified multiple spurious operations scenarios that were not resolved by the evaluations, procedure revisions, and modifications performed based on the earlier guidance in NEI 00-01, Revision 2.</p> <p>In 2014, the licensee evaluated these additional multiple spurious operations scenarios in Engineering Change EC51550. The licensee resolved most of the scenarios, but identified five scenarios that required additional evaluation. The licensee transferred the five remaining scenarios to Condition Report WT-WTGGN-2015-00090 to be addressed as a plant project.</p> <p>In 2017, the triennial fire protection inspection team documented a non-cited violation for the failure to correct a condition adverse to fire protection in a timely manner. Specifically, the team documented that the licensee failed to complete the evaluations for the additional multiple spurious operations scenarios that were identified in 2011. In the inspection report, the team noted that the licensee had approved project funding for 2017 and 2018. The inspection team issued the inspection report on June 2, 2017 as Inspection Report 05000416/2017008 (ML17156A038).</p>			

Subsequent to the 2017 inspection, the licensee completed the evaluations for the multiple spurious operations scenarios in Engineering Change EC73397 in July 2019. The licensee combined two of the scenarios into a single scenario, resulting in four multiple spurious operations scenarios to resolve. The licensee resolved two of the scenarios (2-NEW-7 and 2c) through analysis and credited operator manual actions to resolve the remaining two scenarios (2-NEW-6 and 2p). The licensee updated the safe shutdown analysis to reflect the resolution of these scenarios on July 21, 2020.

Scenario 2-NEW-6 was associated with the spurious start of the non-credited residual heat removal and low pressure core spray pumps without a discharge path, resulting in catastrophic seal failure and the subsequent loss of suppression pool inventory and net positive suction head for the credited safe shutdown pumps. The licensee evaluated this scenario in Calculation MC-Q1111-17002, "MSO Scenario: Estimated Time for Operator Manual Action After Multiple Pumps Undergo Dead Head Conditions to Affect NPSH of RHR and LPCS Pumps," Revision 0. The licensee determined a limiting time of 12.8 hours (767 minutes) prior to the loss of net positive suction head for the credited safe shutdown pumps. To resolve this scenario, the licensee added operator manual actions to trip the non-credited residual heat removal and low pressure core spray pumps if the suppression pool level was decreasing during a fire.

Scenario 2p was associated with the spurious start of the non-credited standby service water pump and the spurious opening of three valves in the residual heat removal system. The licensee evaluated this scenario in Calculation MC-Q1111-17004, "Impact on SSW Basin A Due to Diversion to Suppression Pool Due to MSO," Revision 0. The licensee determined that it would take approximately 309 hours for the basin to be depleted to the bottom of the siphon inlet. To resolve this scenario, the licensee added an operator manual action to stop the non-credited standby service water pump for fires in Fire Areas 33, 36, 38, 42, and 50 within 12 hours.

The licensee issued Condition Report PR-PRGGN-2019-01617 to revise Procedure 10-S-03-2, "Response to Fires," on August 6, 2019. This condition report contained Corrective Action 4, which was created to "Coordinate review of the proposed procedure changes (attached to CA2) with the GGNS Fire Protection Engineer (owner of 10-S-03-2). Issue next CA for processing the procedure update for EC73397."

Corrective Action 4 was created on November 24, 2019, with an original due date of January 31, 2020. The due date was subsequently extended four times. The due date was extended the first time due to unanticipated turnover in personnel. The due date was extended two additional times due to a lack of input from the action originator. The due date was extended the final time on June 24, 2020, due to the upcoming arrival of the fire protection inspection team. At the beginning on August 10, 2020, the licensee had not updated this procedure to incorporate the operator manual actions to resolve the final two multiple spurious operations scenarios. The licensee subsequently revised the procedure on September 17, 2020, to incorporate these manual actions in response to concerns raised by the inspection team.

The team determined that the licensee failed to correct a condition adverse to fire protection in a timely manner since the licensee failed to incorporate the operator manual actions into the post-fire safe shutdown procedure in a timely manner. The team noted that the multiple spurious operation scenarios were first identified in 2011 and this issue had remained uncorrected for nine years.

The team also reviewed the regulatory requirements associated with multiple spurious operations. Regulatory Guide 1.189, "Fire Protection for Nuclear Power Plants," Revision 3, states that the information included in Appendix H of NEI 00-01 may be used in classifying components on the success path required for hot shutdown and those important to safe shutdown, when applied in conjunction with the regulatory guide. NEI 00-01, "Guidance for Post-Fire Safe Shutdown Circuit Analysis", Revision 2, Appendix H, "Required for Hot Shutdown Versus Important to SSD [Safe Shutdown] Components," provides guidance on the classification of equipment as "required for hot shutdown" and "important to safe shutdown." This guidance states (emphasis added): "If the

evaluation indicates that there is no impact, for an unlimited amount of time, to the required hot shutdown system to perform its required safe shutdown function,” then the flow diversion is classified as “non-impacting.”

The team noted that the plant could not withstand either of these scenarios for an unlimited amount of time without operator manual actions. Therefore, the flow diversions would not be classified as “non-impacting” and the flow diversions need to be addressed by the licensee. This provided further evidence that the operator manual actions were required corrective actions and not procedural enhancements.

Corrective Actions: There was no immediate safety concern because the multiple spurious operations scenarios did not prevent the ability to achieve safe shutdown. The licensee subsequently revised the procedure on September 17, 2020, to incorporate these manual actions.

Corrective Action References: CR-GGN-2020-09284 and CR-GGN-2020-09285

#### Performance Assessment:

Performance Deficiency: The failure to correct a condition adverse to fire protection in a timely manner was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Protection Against External Factors (Fire) 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.

Significance: The team evaluated the risk significance of the finding using Inspection Manual Chapter 0609, Appendix F, “Fire Protection Significance Determination Process,” dated May 2, 2018, because it affected the ability to reach and maintain safe shutdown in case of a fire.

The team assigned the post-fire safe shutdown category to the finding because it involved circuit failure modes and effects (e.g., spurious operation issues).

The team discussed the finding with a senior reactor analyst because the finding involved multiple fire areas. In consultation with the senior reactor analyst, the team determined the risk significance for fire areas outside of the control room and the control room separately.

For fire areas outside of the control room, the team determined the finding was of very low risk significance (Green) in Step 1.4.7 because the impact of the finding was limited to equipment that was not required for the credited safe shutdown success path.

For the control room, the senior reactor analyst performed a Phase 3 evaluation to determine the risk significance because it involved a postulated control room fire that led to control room evacuation. For the control room, the analyst used the fire ignition frequency for the control room listed in the Grand Gulf Nuclear Station Engineering Report for Individual Plant Examination of External Events Summary Report, Revision 1, as the best available information. The analyst multiplied the fire ignition frequency ( $F_{ICR}$ ) by a severity factor (SF) and a non-suppression probability indicating that operators failed to extinguish the fire within 20 minutes, assuming 2 minutes for detection, and the fire required a control room evacuation ( $NP_{CRE}$ ). The resulting control room evacuation frequency ( $F_{CR-EVAC}$ ) was:

$$F_{CR-EVAC} = F_{ICR} * SF * NP_{CRE} = 9.5E-3 * 0.1 * 1.30E-2 = 1.24E-5/yr$$

The control room had a total of 43 panels and 15 termination cabinets. The analyst determined that four panels and three cabinets were associated with Scenario 2p and four hot shorts were required in at least two independent panels in order for this scenario to occur. The analyst also determined that three panels were associated with Scenario 2-NEW-6 and two hot shorts in a single panel were sufficient for this scenario to occur.

The analyst calculated a bounding change in core damage frequency (CDF) for each scenario by multiplying the control room evacuation frequency by the fraction of panels and termination cabinets containing the affected circuits and the probability of the hot shorts occurring. The analyst calculated a bounding change in core damage frequency for the finding by adding the change in core damage frequency for each scenario.

$$CDF_{2p} = F_{CR-EVAC} * (7/58) * P_{Short}^4 = 1.24E-5/yr * (7/58) * (0.64)^4 = 2.50E-7/yr$$

$$CDF_{2-NEW-6} = F_{CR-EVAC} * (3/58) * P_{Short}^2 = 1.24E-5/yr * (3/58) * (0.64)^2 = 2.62E-7/yr$$

$$CDF = CDF_{2p} + CDF_{2-NEW-6} = 2.50E-7/yr + 2.62E-7/yr = 5.12E-7/yr$$

This change in core damage frequency was considered to be bounding because it assumed:

- Fire damage in the applicable cabinets would create circuit faults such that the multiple spurious operations scenarios would occur
- The conditional core damage probability given a control room fire with evacuation and the multiple spurious operations scenarios was equal to one
- The probability a hot short occurred is the maximum value of 0.64 provided in NUREG/CR-7150, "Joint Assessment of Cable Damage and Quantification of Effects from Fire (JACQUE-FIRE)," Volume 2; and
- The performance deficiency accounted for the entire change in core damage frequency (i.e., the baseline core damage frequency for this event was zero)

In accordance with Inspection Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process," dated March 23, 2020, the analyst screened the finding for its potential risk contribution to large early release frequency because the bounding change in core damage frequency provided a risk significance estimate greater than 1E-7/yr.

Given that Grand Gulf Nuclear Station has a Mark III containment, the control room evacuation scenarios of concern do not include intersystem loss of coolant accidents or station blackouts, and the control room evacuation scenarios of concern do not result in a high reactor coolant system pressure, the analyst determined that this finding was not significant with respect to large early release frequency. The analyst determined the finding was of very low risk significance (Green).

Cross-Cutting Aspect: H.1 - Resources: Leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. The team assigned a cross-cutting aspect in the area of human performance associated with resources because the licensee failed to provide sufficient resources to complete the corrective actions in a timely manner. Specifically, the licensee failed provide sufficient resources to update the analyses and procedures for multiple spurious operations scenarios in a timely manner.

#### Enforcement:

Violation: License Condition 2.C.(41) requires, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in Revision 5 to the Updated Final Safety Analysis Report and as approved in the Safety Evaluations, dated August 23, 1991, and September 29, 2006.

Updated Final Safety Analysis Report, Section 9.5.1.3 states, in part, that, as noted in the Safety Evaluation Report (NUREG 0831), the NRC staff's Safety Evaluation Report concluded, based on evaluation of the fire protection program and related commitments, that the fire protection program meets the applicable guidelines of Branch Technical Position APCS 9.5-1, dated August 23, 1978. Branch Technical Position APCS 9.5-1, Position C.8, states, in part, that measures should be established to assure that conditions adverse to fire protection are promptly identified and corrected.

Contrary to the above, from August 2011 to September 17, 2020, the licensee failed to promptly correct a condition adverse to fire protection. Specifically, the licensee failed to complete corrective actions for multiple spurious operation concerns identified in 2011 and documented as non-cited violation, NCV 05000416/2017008-01, "Untimely Corrective Action." The licensee failed to incorporate operator manual actions into the post-fire safe shutdown procedure.

Enforcement Action: This violation is being cited because the licensee failed to restore compliance within a reasonable period of time after the violation was identified 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 November 5, 2020, the inspectors presented the triennial fire protection inspection results to Mr. B. Wertz, General Manager Plant Operations, and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.05	Calculations	GGNS-EE-11-00001	GGNS Appendix R Safe Shutdown Analysis (FPP-1)	004
		GGNS-NE-10-00003	GGNS EPU Appendix R - Fire Protection	04
		GGNS-NE-16-00004	Time Critical Operator Actions for Grand Gulf Nuclear Station	2
		MC-Q1111-17002	MSO Scenarios: Estimated Time for Operator Manual Action After Multiple Pumps Undergo Dead Head Conditions to Affect NPSH or RHR and LPCS Pumps	0
		MC-Q1111-17003	Impact of Spurious HPCS on RHR Alternate Shutdown Cooling	0
		MC-Q1111-17004	Impact on SSW Basin A Due to Diversion to Suppression Pool Due to MSO	0
		MC-Q1111-17006	MOV Thrust Evaluation for MSO 2-NEW-6	0
		MC-Q1B21-11001	RPV Inventory Loss Through Outboard MSIV Drain Lines and RHR NPSH During an Appendix R Control Room Fire	0
		MC-Q1B21-14001	Boiling Off Reactor Inventory through the Steam Line Drains and MSIV-LCS due to Multiple Spurious Operations (MSO)	0
		MC-Q1E12-05007	RHR NPSH During an Appendix R Control Room Fire	0
	Corrective Action Documents		CR-GGN-2002-00645 CR-GGN-2017-03996 CR-GGN-2017-04011 CR-GGN-2017-04028 CR-GGN-2019-10210 CR-GGN-2019-10214 CR-GGN-2017-03368	
	Corrective Action Documents Resulting from Inspection		CR-GGN-2020-08956 CR-GGN-2020-09284 CR-GGN-2020-09285 CR-HQN-2020-01662	
	Drawings	A-0634	Unit 1 Aux & Diesel Gen Bldg and SSW Pump House - Fire Protection Floor Plans at El. 133'-0" & 139'-0"	5
		A-KG0630	Control Building Fire Protection Plan	A

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		E-1086-001	MCC Tabulation 480 V ESF MCC-16B11, Auxiliary Building	42
		E-1181-036	Schematic Diagram, E12 Residual Heat Removal System RHR Injection Valve F0426 (F42-B)	06
		M-1085C	P&I Diagram, Residual Heat Removal Diagram	20
		M-652.0-NS-1.1-6-C	Low Pressure CO2 Fire Extinguishing System Building Lay-Out Elev. 113 _ 119FT	
		M-652.0-NS-1.1-7-G	Low Pressure CO2 Fire Extinguishing System Building Lay-Out Elev. 113 _ 119FT	
		M-652.0-NS-1.1-8-F	Low Pressure CO2 Fire Extinguishing System One Hazard Details	
		M652.0-NS-1.1-10-E	Low Pressure CO2 Fire Extinguishing System One Hazard Details	
		M652.0-NS-1.1-3-2	Low Pressure CO2 Fire Extinguishing System	
		M652.0-NS-1.1-4-D	Low Pressure CO2 Fire Extinguishing System	
	Engineering Changes	EC-73397	Revised Engineering Report GGNS-EE-11-0001, GGNS Appendix R safe Shutdown Analysis to address multiple MSO items	0
		EC 79268	Power Generation Control Complex (PGCC) Halon 1301 Fire Protection System Replacement	0
		EC86851	Appendix R Update to Address Non-cited Violations from the 2017 NRC Triennial Fire Protection Inspection	0
	Miscellaneous	460000437	Chemetron Fire Systems	01/08/1979
		FB Quals	Fire Brigade Member Qualifications	7/15/2020
		FPP-1-WSES	Water Suppression Effects Study	01/03/1985
		GGNS-ME-19-00002	Engineering Report Review of the Aboveground Metallic Tanks Program for License Renewal Implementation	0
		GGNS-ME-19-00005	Engineering Report Review of the Buried Piping and Tanks Inspection Program for License Renewal Implementation	0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		GLP-FB-ELEC	Fighting Electrical Fires	01
		GLP-FB-INTRO	Introduction to Grand Gulf Nuclear Fire	01
		GLP-FB-PPE	Fire Brigade Protective Equipment	01
		GLP-FB-SUPRS	Fire Suppression Techniques	01
		LO-GLO-2018-00175	GGNS Pre-FPTI (Fire Protection Team Inspection) Self-Assessment	
		MSO White Paper #1	The NRC Inspection Team requested a discussion of the timeliness of corrective actions for the violations documented in the 2017 NRC Fire Protection Inspection Report.	N/A
		MSO White Paper #2	Timeliness of Corrective Actions for 2017 NRC Fire Protection Inspection Violations	N/A
		MSO White Paper #3	The NRC Inspection Team requested a discussion of the timeliness of corrective actions for the violations documented in the 2017 NRC Fire Protection Inspection Report	N/A
		MSO #4 Response	Fourth Response from GG on NOV for untimely MSO resolution Procedure revision	10/13/2020
		N/A	50.59 Evaluation 2020-002 for EC85716	0
		N/A	Licensing Basis Document Change Request LBDCR-2020-0027	04/08/2020
		N/A	Process Applicability Determination Form for EC86851	0
		N/A	Process Applicability Determination Form for EC85716	0
		N/A	Technical Data Sheet - 3M™ Novec™ 1230 Fire Protection Fluid	01/2020
		N/A	Condition Report List - Penetration Seal Work	08/10/2020
		NFPA-12	Standard on Carbon Dioxide Extinguishing Systems	1973
		NFPA-12A	Standard on Halogenated Fire Extinguishing Agent Systems Halon 1301	1973
		NFPA-2001	Standard on Clean Agent Fire Extinguishing Systems	2018
		NUC2018139-NSR-CIF-001	Fire Water Storage Tank A (Interior) As-Found Visual Coating Condition Assessment Report	08/20/2018
		NUC2018139-NSR-CIF-002	Fire Water Storage Tank B (Interior) As-Found Visual Coating Condition Assessment Report	08/20/2018



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		OBS-2019-67673	CNS Fire Drill Observation	6/28/2019
		PR-PRGGN-2019-01617	Procedure Request PR-PRGGN-2019-01617	
		PR-PRGGN-2020-00942	Procedure Request PR-PRGGN-2020-00942	
		PR-PRGGN-2020-01018	Procedure Request PR-PRGGN-2020-01018	
	Operability Evaluations	EN-LI-102	Corrective Action Program	42
	Procedures	04-1-01-P64-3	Fire Protection Cardox System	028
		04-1-02-1H13-P870	Alarm Response Instruction, Panel No.: 1H13-P870	160
		04-S-01-P64-1	Fire Protection Water System	67
		05-1-02-II-1	Shutdown from The Remote Shutdown Panel	052
		05-1-02-II-1	Shutdown from Remote Shutdown Panel	51
		05-S-01-EP-3	Emergency Procedure Containment Control	031
		06-EL-SP64-R-0002	CO2 SYSTEMS TIMING RELAY CALIBRATION AND FUNCTIONAL TEST	104
		06-EL-SP64-R-0003	SURVEILLANCE PROCEDURE Auxiliary Building CO <sup>2</sup> Systems Timing Relay Calibration and Functional Test	103
		06-EL-SP64-R-0005-01	111' Control Building CO2 System Panel N1 P64D207 Timing Relay Calibration and Functional Test	101
		06-EL-SP64-R-0005-01	111' Control Building CO2 System Panel N1P64D207 Timing Relay Calibration and Functional Test	102
		06-EL-SP64-SA-0001	Novec 1230 Detectors and Supervisory Panels Functional Test	107
		06-EL-SP64-SA-1001	CO2 System Thermal Detectors And Supervisory Panel Functional Test	106
		06-EL-SP65-SA-0001	Surveillance Procedure Control Building Fire Detector And Supervisory Panel Functional Test	106
		06-ME-SP64-R-0016	Surveillance Procedure Unit 1 Fire Hose Check	109
		06-ME-SP64-R-0045	Surveillance Procedure Ventilation System Fire Dampers Inspection	113

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		06-OP-1M61-V-0003	Surveillance Procedure Local Leak Rate Test – Low Pressure Water	009
		06-OP-SP64-D-0044	Fire Door Check	119
		06-OP-SP64-M-0011	Surveillance Procedure Fire Protection System Valve Lineup Verification	116
		06-OP-SP64-M-0043	Fire Door Alarm Check	115
		06-OP-SP64-M-0047	Surveillance Procedure Unit I Fire Hose Station And Fire Extinguisher Maintenance	119
		06-OP-SP64-R-0002	10 Ton CO2 Systems Puff Test	112
		06-OP-SP64-R-0048	Visual Inspection of Fire Wrapped Raceways	108
		06-OP-SP64-R-0049	Surveillance Procedure Fire Rated Sealed Penetrations Visual Inspection	112
		06-OP-SP64-W-0045	Weekly Fire Door Check	118
		07-1-24-P64-5	Carbon Dioxide Storage Unit Safety Valve Setpoint	2
		10-S-03-2	Response To Fires	030
		10-S-03-2	Response to Fires	28
		10-S-03-7	Fire Protection Training Program	016
		EN-DC-128	Fire Protection Impact Reviews	13
		EN-LI-100	Process Applicability Determination	029
		EN-LI-101	10 CFR 50.59 Evaluations	20
		EN-OP-115	Conduct of Operations	028
		EN-TQ-125	Fire Brigade Drills	010
		SEP-FPP-GGN-001	Grand Gulf Nuclear Station Fire Protection Plan	1
	Work Orders	00492605	SP64F469 Replace CO2 Storage Unit Pressure Relief Valve	11/12/2019
		00492606	SP64F470 Replace CO2 Storage Unit Pressure Relief Valve	11/12/2019
		52259153	06OPSP64-R-0049-07 Fire Rated Sealed Penetrations	10/06/2015

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Visual Ins	
		52655775	06OPSP64-R-0049-02 Fire Rated Sealed Penetrations Visual Ins	07/01/2017
		52716253	06ELSP64-R-0005-01 D207**CNTL BLDG DIV 1 SWGR ROOM**	01/25/2018
		52720762	06OPSP64-R-0002 10 TON CO2 SYSTEM PUFF TESTS	03/24/2018
		52745113	06ELSP64-R-0005-04 D212**REMOTE S/D DIV 1 & 2	07/24/2018
		52751208	06ELSP65-SA-0001-04 TEST ZONE: 1-04 / CONTROL BLDG 1	08/21/2018
		52805223	06ELSP64-R-0005-01 D207 CNTL BLDG DIV 1 SWGR RM **DIV 1**	03/20/2019
		52814441	06OPSP64-R-0002 10 TON CO2 System Puff Tests	06/09/2019
		52833271	06ELSP64-R-0005-04 D212**REMOTE S/D DIV 1 & 2	09/26/2019
		52842514	06MESP64-R-0045-01 CNTL BLDG DAMPER INSPECTION (21 TOTAL )	03/13/2018
		52848954	06ELSP64-R-0003-01 1P64D200A**DIV 1 SE SWGR RM 119' A-7	05/16/2020
		52850968	06OPSP64-R-0048-06 VISUAL INSPECTION OF FIRE WRAPPED RACEWAY	05/14/2020
		52859363	06OPSP64-R-0049-01 FIRE RATED SEALED PENETRATIONS VISUAL INS	06/25/2020
		52935304	06OPSP64-M-0043 FIRE DOORS ALARM CHECK	07/30/2020