

R. Schin Input to Hatch Fire Protection IR 50-321,366/03-06

SUMMARY OF FINDINGS

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- URI. The team identified an unresolved item in that a local manual operator action, to prevent spurious opening of all 11 safety relief valves during a fire event, would not be performed in sufficient time to be effective. Also, licensee reliance on this manual action for hot shutdown during a fire, instead of physically protecting cables from fire damage, had not been approved by the NRC.

The team determined that this potential issue is related to associated circuits. As described in NRC Inspection Procedure 71111.05, Fire Protection, NRC inspection of associated circuits is temporarily limited. Consequently, this potential issue is identified as an unresolved item. In response to this potential issue, the licensee promptly moved the manual action step to the front of the Fire Procedure to enable operators to accomplish the action much sooner during a fire event. (Section 1R05.05.b.1)

- Green. The team identified a finding with very low safety significance in that a local manual operator action to operate safe shutdown equipment was too difficult and was also unsafe. The licensee had relied on this action instead of providing physical protection of cables from fire damage or preplanning cold shutdown repairs. However, the team judged that some operators would not be able to perform the action.

This finding involved a violation of 10 CFR 50, Appendix R, Section III.G.1 and Technical Specification 5.4.1. The finding is greater than minor because it affected the availability and reliability objectives and the equipment performance attribute of the mitigating systems cornerstone. Since the licensee could have time to develop and implement cold shutdown repairs to facilitate accomplishment of the action, this finding did not have potential safety significance greater than very low safety significance. (Section 1R05.05.b.2)

- Green. The team identified a finding with very low safety significance in that the licensee relied on some manual operator actions to operate safe shutdown equipment, instead of providing the required physical protection of cables from fire damage, and without NRC approval.

This finding involved a violation of 10 CFR 50, Appendix R, Section III.G.2. The finding is greater than minor because it affected the availability and reliability objectives and the equipment performance attribute of the mitigating systems cornerstone. Since the actions could reasonably be accomplished by operators in a timely manner, this finding did not have potential safety significance greater than very low safety significance. (Section 1R05.05.b.3)

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- Green. The team identified a finding with very low safety significance in that emergency lighting was not adequate for some manual operator actions that were needed to support post-fire operation of safe shutdown equipment.

This finding involved a violation of 10 CFR 50, Appendix R, Section III.J. The finding is greater than minor because it affected the reliability objective and the equipment performance attribute of the mitigating systems cornerstone. Since operators would be able to accomplish the actions with the use of flashlights, this finding did not have potential safety significance greater than very low safety significance. (Section 1R05.07.b)

### Report Details

#### 1. **REACTOR SAFETY** **Cornerstones: Initiating Events, Mitigating systems, and Barrier Integrity**

##### 1R05 Fire Protection

##### .05 Operational Implementation of Alternative Safe Shutdown (SSD) Capability

##### a. Inspection Scope

The selected fire areas that were the focus of this inspection all involved reactor shutdown from the control room. None involved abandoning the control room and alternative safe shutdown from outside of the control room. However, the licensee's plans for SSD following a fire in the selected areas involved many local manual operator actions that would be performed outside of the control area of the control room. This section of the inspection focused on those local manual operator actions.

The team reviewed the operational implementation of the SSD capability for a fire in the selected fire areas to determine if: (1) the procedures were consistent with the Appendix R safe shutdown analysis (SSA); (2) the procedures were written so that the operator actions could be correctly performed within the times that were necessary for the actions to be effective; (3) the training program for operators included SSD capability; (4) personnel required to achieve and maintain the plant in hot standby could be provide from the normal onsite staff, exclusive of the fire brigade; and (5) the licensee periodically performed operability testing of the SSD equipment.

The team walked down SSD manual operator actions that were to be performed outside of the control area of the main control room for a fire in the selected fire areas and discussed them with operators. These actions were documented in abnormal operating procedure (AOP) 34AB-X43-001-2, Fire Procedure, Version 10.8, dated May 28, 2003. The team evaluated whether the local manual operator actions could reasonably be performed, using the criteria outlined in NRC Inspection Procedure (IP) 71111.05, Enclosure 2. The team also reviewed applicable operator training lesson plans and job performance measures (JPMs) and discussed them with operators. In addition, the team reviewed records of actual operator staffing on selected days.

##### b. Findings

1. Untimely and Unapproved Manual Operator Action for Fire Safe Shutdown

Introduction: The team found that a local manual operator action to prevent spurious opening of all 11 SRVs would not be performed in sufficient time to be effective. Licensee reliance on this manual action for hot shutdown during a fire, instead of physically protecting cables from fire damage, had not been approved by the NRC. Since fire damage to associated circuits is involved, this potential issue is identified as an unresolved item.

Description: The team noted that step 9.3.2.1 of AOP 34AB-X43-001-2, Fire Procedure, Version 10.8, dated May 28, 2003, stated: "To prevent all 11 SRVs from opening simultaneously, open links BB-10 in Panel 2H11-P927 and BB-10 in Panel 2H11-P928." The team noted that spurious opening of all 11 SRVs would be considered a large loss of coolant accident (LOCA), and that a LOCA must be prevented from occurring during a fire event. Additionally, the team observed that this step was sufficiently far back in the procedure that it may not be completed in time to prevent potential fire damage to cables from causing all 11 SRVs to spuriously open.

The licensee had no preplanned estimate of how long it would take operators to complete this step during a fire event. There was no event time line or operator training JPM on this step. The team noted that, during a fire event, operators could be using many other procedures concurrent with the Fire Procedure. For example, they could be using other procedures to communicate with the fire brigade about the fire, respond to a reactor trip, deal with a loss of offsite power, and provide emergency classifications and offsite notifications of the fire event. During the inspection, licensee operators estimated that, during a fire event, it could take about 30 minutes before operators would accomplish step 9.3.2.1. The team concurred with that time estimate. However, NRC fire models indicated that fires could potentially cause damage to cables in as little as about five to ten minutes. Consequently, the team concluded that during a fire event the licensee's procedures would not ensure that step 9.3.2.1 would be accomplished in time to prevent potential spurious opening of all 11 SRVs.

The team also identified other issues with step 9.3.2.1. There was no emergency lighting inside the panels, so that if the fire caused a loss of normal lighting (e.g., by causing a loss of offsite power), operators would need to use flashlights to perform the actions inside the panels. Consequently, the team considered the emergency lighting for step 9.3.2.1 to be inadequate (see section 1R05.07.b). In addition, labeling of the links inside the panels was poor so that operators stated that they would not fully rely on the labeling. Also, the tool that operators would use to loosen and slide the links inside the energized panels was made of steel and was not professionally electrically insulated. Further, licensee reliance on this operator action, instead of physically protecting the cables as required by 10 CFR 50, Appendix R, Section III.G.2, had not been approved by the NRC.

The licensee stated that cable damage to two instrument cables, for reactor pressure signals, would be needed to spuriously open all 11 SRVs. Since the licensee stated that the two cables were in the same cable tray in fire area 2104, the Unit 2 east cableway, the team considered that a fire in that area could potentially cause all 11 SRVs to spuriously open (see section 1R05.03).

In response to this potential issue, the licensee initiated CR 2003008203 and promptly revised the Fire Procedure before the end of the inspection, moving the actions of step 9.3.2.1 to the beginning of the procedure. The procedure change enabled the actions to be accomplished much sooner during a fire in the Unit 2 east cableway or in other fire areas that were vulnerable to the potential for spuriously opening all 11 SRVs.

Analysis: The team determined that this potential issue is related to associated circuits. As described in NRC Inspection Procedure (IP) 71111.05, Fire Protection, inspection of associated circuits is temporarily limited. Consequently, the team did not pursue the cable routing or circuit analysis that would be necessary to evaluate the possibility, risk, or potential safety significance of all 11 SRVs spuriously opening due to fire damage to the instrument cables (see section 1R5.03).

Enforcement: 10 CFR 50, Appendix R, Section III.G.2 requires that where cables or equipment, including associated non-safety circuits that could prevent operation or cause maloperation due to hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of the primary containment, one of the following means of ensuring that one or the redundant trains is free of fire damage shall be provided: 1) a fire barrier with a 3-hour rating; 2) separation of cables by a horizontal distance of more than 20 feet with no intervening combustibles and with fire detectors and automatic fire suppression; or 3) a fire barrier with a 1-hour rating with fire detectors and automatic suppression.

The licensee had not provided physical protection against fire damage for the two instrument cables by one of the prescribed methods. Instead, the licensee had relied on manual operator actions to prevent the spurious opening of all 11 SRVs. Licensee personnel contended that fire damage to two cables was outside of the Hatch licensing basis and consequently that there was no requirement to protect the instrument cables. However, the licensee could provide no evidence to support that position.

This potential issue will remain unresolved pending the results of current NRC testing, analysis, and guidance related to associated circuits. This NRC analysis may determine if fire damage to two instrument cables could cause the maloperation of the SRVs. Further, if the maloperation could occur, the analysis may provide a basis for determining the likelihood of that maloperation occurring and consequently determining the safety significance of the unprotected cables. This potential issue is identified as URI 50-366/03-06-\_\_\_, Untimely and Unapproved Manual Operator Action for Fire Safe Shutdown. Since resolution of this URI relies on removal of the temporary NRC limitation on inspecting associated circuits, as described in NRC IP 71111.05, this potential issue could remain unresolved for a long time (longer than 180 days).

## 2. Local Manual Operator Action was Too Difficult and Unsafe

Introduction: A finding of very low safety significance was identified in that a local manual operator action to operate SSD equipment was too difficult and was also unsafe. The team judged that some operators would not be able to perform the action. This finding involved a violation of NRC requirements.

**Description:** The team observed that steps 4.15.8.1.1 and 9.3.5.1 of the Fire Procedure were relied on instead of providing physical protection for cables or providing a procedure for cold shutdown repairs. Both steps required the same local manual operator action: "Manually OPEN 2E11-F015A, Inboard LPCI Injection Valve, as required." This action was to be taken in the Unit 2 drywell access, which was a locked high radiation, contaminated, and hot area with temperatures over 100 degrees F.

Valve 2E11-F015A was a large (24-inch diameter) motor-operated gate valve with a three-foot diameter handwheel. The main difficulty with manually opening this valve was lack of an adequate place to stand. An operator showed the team that to perform the action he would have to climb up to and stand on a small section of pipe lagging (a curved area about four inches wide by 12 inches long), and then reach back and to his right side, to hold the handwheel with his right hand, while reaching forward and to his right to hold the clutch lever for the motor operator with his left hand. He would not have good balance while performing the action. The foothold, which was large enough to support only one foot, was well flattened and appeared to have been used in the past to manually operate this valve. The foothold was about six to seven feet above a steel grating, and the team observed that space available for potential use of a ladder to better access the 2E11-F015A valve handwheel was not good.

Other difficulties with manually opening the valve included the heat; required wearing of full anti-contamination clothing, a hardhat, and safety glasses; and inadequate emergency lighting (see section 1R05.07). Also, there was no note or step in the procedure to ensure that the RHR pumps were not running before attempting to manually open the 2E11-F015A valve. If an RHR pump were running, it could create a differential pressure across the valve which could make manually opening it much more difficult. If the operator did not have sufficient agility or strength or stamina, he would be unable to complete the action. Also, the team judged that inability to remove sweat from his eyes, due to wearing gloves that would be contaminated, could be a limiting factor for the operator. In addition, if the operator slipped or lost his balance, he could fall and become injured. Considering all of the difficulties, the team judged that this action was unsafe and that some operators would not be able to perform it.

The licensee had no operator training job performance measure (JPM) for performing this action and could not demonstrate that all operators could perform the action. One experienced operator, who appeared to be in much better physical condition than an average nuclear plant operator, stated that he had manually operated the valve in the past, but that it had been very difficult for him.

The team judged that, since this action was not required to maintain hot shutdown and was required for cold shutdown following a fire in one of the four selected fire areas, licensee personnel could have time to improve the working conditions after a fire. They could have time to install scaffolding or temporary ventilation; improve the lighting; and assign multiple operators to manually open the valve. They could have time to perform a 'cold shutdown repair.' However, the licensee had not preplanned any cold shutdown repairs for opening this valve.

**Analysis:** This finding is greater than minor because it affected the availability and reliability objectives and the equipment performance attribute of the mitigating systems cornerstone. Since the licensee could have time to develop and implement cold

shutdown repairs to facilitate accomplishment of the action, this finding did not have potential safety significance greater than very low safety significance.

**Enforcement:** 10 CFR 50, Appendix R, Section III.G.1 requires that fire protection features shall be provided for systems important to safe shutdown and shall be capable of limiting fire damage so that systems necessary to achieve and maintain cold shutdown from either the control room or emergency control stations can be repaired within 72 hours. In addition, TS 5.4.1 requires that written procedures shall be established, implemented, and maintained covering activities including Fire Protection Program implementation and including the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33 recommends procedures for combating emergencies including plant fires and procedures for operation and shutdown of safety-related BWR systems. The Fire Protection Program includes the Safe Shutdown Analysis, which requires that valve 2E11-F015A be opened for SSD following a fire in fire area 2104, the Unit 2 east cableway. AOP 34AB-X43-001-2, Fire Procedure, Version 10.8, dated May 28, 2003, implements these requirements in that it provides information and actions necessary to mitigate the consequences of fires and to maintain an operable shutdown train following fire damage to specific fire areas. Also, AOP 34AB-X43-001-2 provides steps 4.15.8.1.1 and 9.3.5.1 for manually opening valve 2E11-F015A following a fire in fire area 2104.

Contrary to the above, the licensee had not provided physical protection against fire damage, for electrical operation valve 2E11-F015A from the control room, and had no procedure for repairing any related fire damage within 72 hours. Instead, the licensee relied on local manual operator actions, as described in steps 4.15.8.1.1 and 9.3.5.1 of AOP 34AB-X43-001-2. However, those procedure steps were inadequate in that some operators would not be able to perform them because the required actions were too difficult and also were unsafe. In response to this issue, the licensee initiated CR 203008202. Because the identified inadequate operator actions are of very low safety significance and the issue has been entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC's Enforcement Policy: NCV 50-366/03-06-\_\_\_, Local Manual Operator Action for Post-Fire Safe Shutdown Equipment was Too Difficult and Unsafe.

### 3. Unapproved Manual Operator Actions for Post-Fire Safe Shutdown

**Introduction:** A finding of very low safety significance was identified in that the licensee relied on some manual operator actions to operate SSD equipment, instead of providing the required physical protection of cables from fire damage, and without NRC approval. This finding involved a violation of NRC requirements.

**Description:** The team observed that AOP 34AB-X43-001-2, Fire Procedure, included some local manual operator actions to achieve and maintain hot shutdown that had not been approved by the NRC. Examples included:

- Step 4.15.2.2; ...if a loss of offsite power occurs and emergency busses energize ..."Place Station Service battery chargers 2R42-S026 (2R42-S029), 2R42-S027 (2R42-S030) AND 2R42-S028 (2R42-S031) in service per 34SO-R42-001-2."

- Step 4.15.4.5; ...If HPCI fails to automatically trip on high RPV level... "OPEN the following links to energize 2E41-F124, Trip Solenoid Valve, AND to fail 2E41-F3025 HPCI Governor Valve, in the CLOSED position:
  - TT-75 in panel 2H11-P601
  - TT-76 in panel 2H11-P601"
- Step 4.15.4.6; ...If HPCI fails to automatically trip on high RPV level... "OPEN breaker 25 in panel 2R25-S002 to fail 2E41-F3052, HPCI Governor Valve, in the CLOSED position."

The team walked down these actions and judged that they could reasonably be accomplished by operators in a timely manner. In addition, the team determined that these operator actions were being used instead of physically protecting cables from fire damage that could cause a loss of station service battery chargers or a HPCI runaway.

Analysis: The finding is greater than minor because it affected the availability and reliability objectives and the equipment performance attribute of the mitigating systems cornerstone. Since the actions could reasonably be accomplished by operators in a timely manner, this finding did not have potential safety significance greater than very low safety significance.

Enforcement: 10 CFR 50, Appendix R, Section III.G.2 requires that where cables or equipment, including associated non-safety circuits that could prevent operation or cause maloperation due to hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of the primary containment, one of the following means of ensuring that one or the redundant trains is free of fire damage shall be provided: 1) a fire barrier with a 3-hour rating; 2) separation of cables by a horizontal distance of more than 20 feet with no intervening combustibles and with fire detectors and automatic fire suppression; or 3) a fire barrier with a 1-hour rating with fire detectors and automatic suppression.

Contrary to the above, the licensee had not provided the required physical protection against fire damage for power to the station service battery chargers or for HPCI electrical control cables. Instead, the licensee relied on local manual operator actions, without NRC approval. In response to this issue, the licensee initiated CR 2003800166. Because the issue had very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC's Enforcement Policy: NCV 50-366/03-06-\_\_\_, Unapproved Manual Operator Actions for Post-Fire Safe Shutdown.

.06 Communications

a. Inspection Scope

The team reviewed the plant communications systems that would be relied upon to support fire brigade and safe shutdown activities. The team walked down portions of the safe shutdown procedures to verify that adequate communications equipment would be available for personnel performing local manual operator actions. In addition, the

team reviewed the adequacy of the radio communication system used by the fire brigade to communicate with the main control room.

b. Findings

No findings of significance were identified.

.07 Emergency Lighting

a. Inspection Scope

The team inspected the licensee's emergency lighting systems to verify that 8-hour emergency lighting coverage was provided as required by 10 CFR 50, Appendix R, Section III.J., to support local manual operator actions that were needed for post-fire operation of SSD equipment. During walkdowns of the post-fire SSD operator actions for fires in the selected fire areas, the team checked if emergency lighting units were installed and if lamp heads were aimed to adequately illuminate the SSD equipment, the equipment identification tags, and the access and egress routes thereto, so that operators would be able to perform the actions without needing to use flashlights.

b. Findings

Inadequate Emergency Lighting for Operation of Safe Shutdown Equipment

Introduction: A finding with very low safety significance was identified in that emergency lighting was not adequate for some manual operator actions that were needed to support post-fire operation of SSD equipment. This finding involved a violation of NRC requirements.

Description: The team observed that emergency lighting was not adequate for some manual operator actions that were needed to support post-fire operation of SSD equipment. Examples included the following operator actions in procedure 34AB-X43-001-2, Fire Procedure, Version 10.8, dated May 28, 2003:

- Step 4.15.2.2; "...if a loss of offsite power occurs and emergency busses energize ..."Place Station Service battery chargers 2R42-S026 (2R42-S029), 2R42-S027 (2R42-S030) AND 2R42-S028 (2R42-S031) in service per 34SO-R42-001-2."
- Step 4.15.4.5; "...If HPCI fails to automatically trip on high RPV level... "OPEN the following links to energize 2E41-F124, Trip Solenoid Valve, AND to fail 2E41-F3025 HPCI Governor Valve, in the CLOSED position:
  - TT-75 in panel 2H11-P601
  - TT-76 in panel 2H11-P601"
- Step 4.15.5; "IF 2R25-S065, Instrument Bus 2B, is DE-ENERGIZED perform the following manual actions to maintain 2C32-R655, Reactor Water Level Instrument, operable:
  - 4.15.5.1; At panel 2H11-P612, OPEN links AAA-11 and AAA-12.
  - 4.15.5.2; At panel 2H11-P601, CLOSE links HH-48 and HH-49."

- Steps 4.15.8.1.1 and 9.3.5.1; “Manually OPEN 2E11-F015A, Inboard LPCI Injection Valve, as required.”
- Steps 4.15.8.1.2 and 9.3.5.2; “Manually CLOSE 2E11-F018A, RHR Pump A Minimum Flow Isolation Valve, as required.”
- Step 9.3.2.1; “To prevent all 11 SRVs from opening simultaneously, open links BB-10 in Panel 2H11-P927 and BB-10 in Panel 2H11-P928.”
- Step 9.3.3; “At Panel 2H11-P627, open links AA-19, AA-20, AA-21, and AA-22, to prevent spurious actuation of SRVs 2B21-F013D AND 2B21-F013G.”
- Step 9.3.6; “OPEN link TB9-21 in Panel 2H11-P700 to open Drywell Pneumatic System Inboard Inlet Isolation, 2P70-F005.”
- Step 9.3.7; “OPEN link TB1-12 in Panel 2H11-P700 to open Drywell Pneumatic System Outboard Inlet Isolation, 2P70-F005.”
- Step 9.3.9.1; “Confirm OR manually CLOSE RHR Shutdown Cooling Valve 2E11-F006D.”
- Step 9.3.9.2; “Manually OPEN Shutdown Cooling Suction Valve 2E11-F008, IF required...”

The team verified that flashlights were readily available and judged that operators would be able to use the flashlights to accomplish the actions, with two exceptions. One exception was the action to open links in two panels to prevent all 11 SRVs from spuriously opening, which was judged to be untimely (see section 1R05.05.b.1). The other exception was the action to open 2E11-F015A, which was judged to be too difficult (see section 1R05.05.b.2). For all of these actions, the lack of adequate emergency lighting could make the actions more difficult to complete in a timely manner and increase the chance of operator error.

Analysis: This finding is greater than minor because it affected the reliability objective and the equipment performance attribute of the mitigating systems cornerstone. Since operators would be able to accomplish the actions with the use of flashlights, this finding did not have potential safety significance greater than very low safety significance.

Enforcement: 10 CFR 50, Appendix R, Section III.J. requires that emergency lighting units with at least an 8-hour battery power supply shall be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto.

Contrary to the above, emergency lighting units were not adequately provided in all areas needed for operation of safe shutdown equipment. In response to this issue, the licensee initiated CRs 2003008237 and 2003008179. Because the identified lack of emergency lighting is of very low safety significance and has been entered into the licensee’s corrective action program, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC’s Enforcement Policy: NCV 50-366/03-06-\_\_\_\_, Inadequate Emergency Lighting for Operation of Safe Shutdown Equipment.

.08 Cold Shutdown Repairs

The licensee had identified no needed cold shutdown repairs. Also, with the exception of the potential need for a cold shutdown repair to open valve 2E11-F015A (see section 1R05.05.b.2), the team identified no other need for cold shutdown repairs. Consequently, this section of IP 71111.05 was not performed.

.11 Compensatory Measures

a. Inspection Scope

The team reviewed the licensee's administrative controls for implementing compensatory measures for out-of-service, degraded, or inoperable fire protection or post-fire safe shutdown equipment. The review was performed to verify that the risk associated with removing fire protection or post-fire equipment from service was properly assessed and implemented in accordance the approved fire protection program.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES**

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The team reviewed licensee audits and self-assessments of fire protection and safe shutdown to assess the types of findings that were generated and to verify that the findings were appropriately entered into the licensee's corrective action program. The team also reviewed corrective action program CRs related to post-fire SSD and CRs resulting from fire, smoke, sparks, arcing, and equipment overheating incidents for the last 18 months to assess the effectiveness of the fire prevention program and to identify any maintenance or material conditions related to fire incidents or post-fire SSD.

b. Findings

No findings of significance were identified.

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

50-366/03-06-__	URI	Untimely and Unapproved Manual Operator Action for Post-Fire Safe Shutdown. (Section 1R05.05.b.1)
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Opened and Closed

50-366/03-06-___	NCV	Local Manual Operator Action for Post-Fire Safe Shutdown Equipment was Too Difficult and Unsafe. (Section 1R05.05.b.2)
50-366/03-06-___	NCV	Unapproved Manual Operator Actions for Post-Fire Safe Shutdown. (Section 1R05.05.b.3)
50-366/03-06-___	NCV	Inadequate Emergency Lighting for Operation of Post-Fire Safe Shutdown Equipment. (Section 1R05.07.b)

Discussed

None

**LIST OF DOCUMENTS REVIEWED**

Procedures

AOP 34AB-C11-001-2, Loss of CRD System, Version 2.3  
AOP 34AB-C71-001-2, Scram Procedure, Version 9.9  
AOP 34AB-C71-002-2, Loss of RPS, Version 4.3  
AOP 34AB-N61-002-2S, Main Condenser Vacuum Low, Version 0.4  
AOP 34AB-P41-001-2, Loss of Plant Service Water, Version 8.1  
AOP 34AB-P42-001-2S, Loss of Reactor Building Closed Cooling Water, Version 1.4  
AOP 34AB-P51-001-2, Loss of Instrument and Service Air System or Water Intrusion into the Service Air System, Version 3.0  
AOP 34AB-R22-001-2, Loss of DC Busses, Version 2.4  
AOP 34AB-R22-002-2, Loss of 4160V Emergency Bus, Version 1.4  
AOP 34AB-R22-003-2, Station Blackout, Version 2.3  
AOP 34AB-R22-004-02, Loss of 4160V Bus 2A, 2B, 2C, or 2D, Version 1.3  
AOP 34AB-R23-001-2S, Loss of 600V Emergency Bus, Version 0.4  
AOP 34AB-R24-001-2, Loss of Essential AC Distribution Buses, Version 1.3  
AOP 34AB-R25-002-02, Loss of Instrument Buses, Version 5.4  
AOP 34AB-T47-001-2, Complete Loss of Drywell Cooling, Version 1.8  
AOP 34AB-X43-001-2, Fire Procedure, Version 10.8  
AOP 34AB-X43-002-0, Fire Protection System Failures, Version 1.3  
SOP 34SO-C71-001-2, 120VAC RPS Supply System, Version 10.2  
SOP 34SO-N40-001-2, Main Generator Operation, Version 10.8  
SOP 34SO-R42-001-2S, 125V DC and 125/250 VDC System, Version 7.1  
SOP 34SO-S22-001-2, 500 KV Substation Switching, Version 5.2  
31EO-EOP-010-2S, RC RPV Control (Non-ATWS), Rev. 8, Attachment 1  
31EO-EOP-012-2S, PC-1 Primary Containment Control, Rev. 4, Attachment 1  
31EO-EOP-013-2S, PC-2 Primary Containment Control, Rev. 4, Attachment 1  
31EO-EOP-014-2S, SC - Secondary Containment Control, Rev. 6, Attachment 1  
31EO-EOP-016-2S, CP-2 RPV Flooding, Rev. 8, Attachment 1

Drawings

H-11814, Fire Hazards Analysis, Control Bldg. El. 130'-0", Rev. 5  
H-11821, Fire Hazards Analysis, Turbine Bldg. El. 130'-0", Rev. 0  
H-11846, Fire Hazards Analysis, Diesel Generator Bldg., Rev. 2  
H-26014, R.H.R. System P&ID Sheet 1, Rev. 49  
H-26015, R.H.R. System P&ID Sheet 2, Rev. 46  
H-26018, Core Spray System P&ID, Rev. 29

#### Calculations, Analyses, and Evaluations

E. I. Hatch Nuclear Plant Units 1 and 2 Safe Shutdown Analysis Report, Rev. 20.  
Edwin I. Hatch Nuclear Plant Fire Hazards Analysis and Fire Protection Program, Rev. 20

#### Audits and Self-Assessments

Audit No. 01-FP-1, Audit of the Fire Protection Program, dated April 12, 2001  
Audit No. 02-FP-1, Audit of the Fire Protection Program, dated February 28, 2002  
Audit No. 03-FP-1, Audit of Fire Protection, dated April 21, 2003

#### CRs Reviewed

CR 2000007119, Fire Procedure 34AB-X43-001-1S Needs to be Enhanced  
CR 2001002032, Fire Procedure 34AB-X43-001-2S Needs Actions for Diesel Fuel Oil Pumps  
CR 2003004377, Fire Procedure 34AB-X43-001-1 Enhancements  
CR 2003004379, Fire Procedure 34AB-X43-001-2 Enhancements  
CR 2003004382, SSAR Discrepancies

#### CRs Generated During this Inspection

CR 2003007129, No Fire Procedure Actions for a Fire in the 2C Switchgear Room  
CR 2003007719, Use of Link Wrench  
CR 2003007987, Fire Damper Corrective Action  
CR 2003008141, Breaker Maintenance Handle  
CR 2003008165, SSAR Section 2.100  
CR 2003008179, Drywell Access Emergency Lights  
CR 2003008181, Link Labeling  
CR 2003008202, Manually Opening MOV 2E11-F015A  
CR 2003008203, SRV Manual Action Steps in Fire Procedure  
CR 2003008237, Emergency Lights and Component Labeling for Manual Actions  
CR 2003008238, CO2 Migration Through Floor Drains  
CR 2003008250, Communications for Post-Fire SSD  
CR 2003800132, SSAR Error for Position of 2E11-F004A  
CR 2003800151, Instruments for Manual Actions  
CR 2003800152, Sliding Links in SSAR  
CR 2003800153, Promat Test Report  
CR 2003800166, Review Fire Procedure Steps 4.15.2 and 4.15.4 for Appendix R Compliance