



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
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ATLANTA, GEORGIA 30303-8931**

March 26, 2004

Florida Power and Light Company  
ATTN: Mr. J. A. Stall, Senior Vice President  
Nuclear and Chief Nuclear Officer  
P.O. Box 14000  
Juno Beach, FL 33408-0420

**SUBJECT: TURKEY POINT NUCLEAR PLANT - NRC TRIENNIAL FIRE PROTECTION  
INSPECTION REPORT 05000250/2004007 AND 05000251/2004007**

Dear Mr. Stall:

On February 13, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Turkey Point Nuclear Plant Units 3 and 4. The enclosed inspection report documents the inspection findings, which were discussed on that date with Mr. T. Jones and other members of your staff. Following completion of additional review in the Region II office, a final exit was held by telephone with Mr. W. Prevatt and other members of your staff on March 26, 2004, to provide an update on changes to the preliminary inspection findings.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding of very low safety significance (Green) involving a violation of NRC requirements. However, because of the very low safety significance and because it is entered into your corrective action program, the NRC is treating the finding as a non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator Region 2; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Turkey Point Nuclear Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Charles R. Ogle, Chief  
Engineering Branch 1  
Division of Reactor Safety

Docket Nos.: 50-250, 50-251  
License Nos.: DPR-31, DPR-41

Enclosure: NRC Triennial Fire Protection Inspection Report 05000250/2004007 and  
05000251/2004007 w/Attachment: Supplemental Information

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**U. S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos.: 50-250, 50-251

License Nos.: DPR-31, DPR-41

Report No.: 05000250/2004007 and 05000251/2004007

Licensee: Florida Power and Light Company

Facility: Turkey Point Nuclear Plant

Location: 9760 S. W. 344<sup>th</sup> Street  
Florida City, FL 33035

Dates: January 26 - 30, 2004 (Week 1)  
February 9 - 13, 2004 (Week 2)

Inspectors: C. Payne, Senior Reactor Inspector (Lead Inspector)  
P. Fillion, Reactor Inspector  
G. Wiseman, Fire Protection Inspector

Accompanying Personnel: N. Staples, Nuclear Safety Intern  
K. O'Donohue, Fire Protection Team Leader

Approved by: Charles R. Ogle, Chief  
Engineering Branch 1  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000250/2004-007, 05000251/2004-007; 01/26 - 30/2004 and 02/09 - 13/2004; Turkey Point Nuclear Plant, Units 3 and 4; Triennial Fire Protection.

The report covered an announced two-week period of inspection by three regional inspectors. One Green non-cited violation, six unresolved items pending a significance determination, and two unresolved items pending additional inspection were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### A. NRC-Identified and Self-Revealing Findings

#### Cornerstone: Mitigating Systems

- Green. A non-cited violation (NCV) of 10 CFR 50, Appendix R, Section III.G.3 and License Condition 3.D was identified for failure to provide full area fire detection and a fixed suppression system in the Unit 3 and 4 mechanical equipment room for fires in Fire Area (FA) MM [Fire Zone (FZ) 97]. Upon discovery, the licensee declared the detection and suppression inoperable, established an hourly fire watch for FZ 97, and entered this issue into its corrective action program.

The finding adversely affected the fire detection and suppression capability defense-in-depth elements. The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. Because the fire ignition frequency was low, the fire detection in the emergency recirculating filter was not degraded, and alternative shutdown systems and procedures were available to mitigate a fire in this area, the finding was determined to have very low safety significance. (Section R05.10.b.2)

- TBD. A finding was identified for failure to protect the control circuit of motor operated valve (MOV) MOV-4-626, RCP thermal barrier component cooling water return isolation valve, to prevent spurious operation during a fire in Fire Area (FA) U [Fire Zone (FZ) 67] as required by 10 CFR 50, Appendix R, Section III.G.3. An error in the Safe Shutdown Analysis Essential Equipment List resulted in failure to properly classify MOV-4-626 as being required to assure SSD. As a result, 0-ONOP-016.10 failed to include MOV-4-626 as part of the mitigation strategy against spurious valve operation in FZ 67. The licensee entered this issue into its corrective action program.

The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. The finding is applicable to FZ 67 and is unresolved pending completion of a significance determination. (Section 1R05.01.b.1)

- TBD. A finding was identified for failure to protect the control circuits and cables that could cause maloperation of necessary valves in the reactor coolant pump (RCP) thermal barrier cooling system as required by 10 CFR 50, Appendix R, Section III.G.2 for fires in either Fire Area (FA) T [Fire Zone (FZ) 63] or FA U (FZ 67). The inspectors found that the licensee instead relied upon local manual operator actions to verify correct alignment of RCP seal package thermal barrier cooling valves. When evaluating the feasibility of the manual actions using the guidance in the inspection procedure, the inspectors identified that 0-ONOP-016.10 allowed 20 minutes to complete the operator actions for verification of thermal barrier cooling valve alignment. However, industry analyses have determined that seal package damage could occur within 13 minutes of loss of all seal package cooling. The licensee entered this finding into its corrective action program and resolved this concern by revising 0-ONOP-016.10.

The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. The finding is applicable to FZ 63 and FZ 67 and is unresolved pending completion of a significance determination. (Section 1R05.01.b.2)

- TBD. A finding was identified for failure to protect the control circuits and cables that could cause maloperation of safe shutdown components for fires in either Fire Area U [Fire Zone (FZ) 67] as required by 10 CFR 50, Appendix R, Section III.G.2. The inspectors found that the licensee instead relied upon local manual operator actions. However, the licensee failed to evaluate and mitigate the effects of loss of security card key access to rooms where local manual operator actions are performed for a fire in these areas. The inspectors identified that security card key readers for FZ 68 (4A 4160 V switchgear room) and for FZ 93/94 (Unit 4, 480 V Load Centers A and B Room and Unit 4, 480 V Load Centers C and D Room, respectively) could potentially lose card key function as a result of a fire in FZ 67; thus impeding operator access to these rooms. The licensee entered this finding into its corrective action program.

The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. The finding is applicable to FZ 67 and is unresolved pending completion of a significance determination. (Section 1R05.01.b.3)

- TBD. A finding was identified for failure to protect the control circuits for level control valves (LCV) LCV-3-115B and LCV-4-115B, refueling water storage tank (RWST) to charging pump valve, to prevent spurious operation during a fire in Fire Area (FA) T [Fire Zone (FZ) 63] or FA U (FZ 67) as required by 10 CFR 50, Appendix R, Section III.G.2. If valve LCV-3/4-115B spuriously closes due to a fire-induced thermal insult, loss of the RWST as a suction source could lead to charging pump damage. The licensee entered this finding into its corrective action program and resolved this concern by revising 0-ONOP-016.10.

The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. This finding is applicable to FZ 63 and FZ 67 and is unresolved pending completion of a significance determination. (Section 1R05.03)

- TBD. A finding was identified for failure to ensure local manual operator actions to verify correct alignment of MOV-3-716A and MOV-4-716A, Unit 3 and Unit 4 reactor coolant pump (RCP) thermal barrier component cooling water supply isolation valves, were completed in a timely manner for a fire in Fire Area (FA) MM (Fire Zones 106, 106R, or 97) as required by 10 CFR 50, Appendix R, Section III.G.3. The inspectors identified that 0-ONOP-105, Attachment 7 (Unit 3) and Attachment 8 (Unit 4) allowed 20 minutes to complete the operator actions for verifying that MOV-3-716A and MOV-4-716A were open. However, industry analyses have determined that seal package damage could occur within 13 minutes of loss of all seal package cooling. Thus, the operator guidance provided in 0-ONOP-105 does not provide timely action and could possibly result in an RCP seal LOCA. The licensee entered this finding into its corrective action program and resolved this concern by adding a security key to the operator key rings.

The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. This finding is applicable to FA MM and is unresolved pending completion of a significance determination. (Section 1R05.05.b.1)

- TBD. A finding was identified for local manual operator actions that may not be timely due to reliance on security support to bring a vital area security key to access normally locked rooms which do not have a security card key readers for fires in Fire Area (FA) MM [Fire Zones 106, 106R, and 97] as required by 10 CFR 50, Appendix R, Section III.G.3. Operators do not carry vital access security keys with them and 0-ONOP-105 does not require vital access security keys be brought when the control room is evacuated. Instead, security support is required to bring access keys to the operator. However, operator access to key-locked rooms is not ensured because security support could be diverted to higher priority activities. Consequently, local manual operator actions may be delayed and may not be completed in a timely manner to ensure that safe shutdown is achieved. The licensee entered this finding into its corrective action program and resolved this concern by revising 0-ONOP-105.

The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. This finding is applicable to FA MM and is unresolved pending completion of a significance determination.

B. Licensee-Identified Violations

None



## REPORT DETAILS

### 1. REACTOR SAFETY

#### Cornerstones: Initiating Events, Mitigating Systems and Barrier Integrity

##### 1R05 Fire Protection

The purpose of this inspection was to review the Turkey Point Nuclear Plant fire protection program (FPP) for selected risk-significant fire areas. Emphasis was placed on verification that the post-fire safe shutdown (SSD) capability [from both the Main Control Room (MCR) and the Alternate Shutdown Panel (ASP)] and the fire protection features provided for ensuring that at least one redundant train of SSD systems is maintained free of fire damage. The inspection was performed in accordance with the U.S. Nuclear Regulatory Commission's (NRC) Reactor Oversight Process using a risk-informed approach for selecting the fire areas and attributes to be inspected. The inspectors used the licensee's Individual Plant Examination for External Events and in-plant tours to choose three risk-significant fire areas for detailed inspection and review. The fire areas (zones) chosen for review during this inspection were:

- Fire Area (FA) T - Unit 3 Reactor Control Rod Equipment Room on the +18 foot (ft) level. It is a single zone area comprised of Fire Zone (FZ) 63.
- FA U - Unit 4 Train B 4160 Volt (V) Switchgear Room on the +18 ft level. It is a single zone area comprised of FZ 67.
- FA MM - Unit 3 and Unit 4 Control Room on the +42 ft level. It is a multiple zone area comprised of FZ 106, 106R, and 97.

The inspectors evaluated the licensee's FPP against applicable requirements, including Operating License Condition 3.D; Title 10 of the Code of Federal Regulations, Part 50 (10 CFR 50), Appendix R; 10 CFR 50.48; commitments to Appendix A of Branch Technical Position Auxiliary and Power Conversion Systems Branch 9.5-1; Turkey Point Nuclear Plant Updated Final Safety Analysis Report (UFSAR); related NRC safety evaluation reports (SER); and plant Technical Specifications. The inspectors evaluated all areas of this inspection, as documented below, against these requirements.

Specific documents reviewed by the inspectors are listed in the attachment.

##### .01 Systems Required to Achieve and Maintain Post-fire Safe Shutdown

###### a. Inspection Scope

The licensee's Safe Shutdown Analysis Report (SSAR) was reviewed to determine the components and systems necessary to achieve and maintain SSD conditions from the MCR in the event of fire in FZ 63 and 67. The objectives of this evaluation were to:

- Verify that the licensee's shutdown methodology had correctly identified the components and systems necessary to achieve and maintain an SSD condition.
- Confirm the adequacy of the systems selected for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring and support system functions.
- Verify that an SSD can be achieved and maintained without off-site power when it can be confirmed that a postulated fire in any of the selected fire areas could cause the loss of off-site power.
- Verify that local manual operator actions are consistent with the plant's fire protection licensing basis.

Focusing on the chemical and volume control system, the team evaluated whether the SSAR properly identified and categorized components in terms of safe shutdown function. In addition, instrumentation known to be necessary for safe shutdown, e.g., pressurizer pressure and level indication, was checked. The following safe shutdown components were reviewed for operability during and after a severe fire in either FZ 63 or 67.

- Volume control tank outlet valve, LCV-3(4)-115C
- Refueling Water Storage Tank (RWST) to charging pump valve, LCV-3(4)-115B
- Reactor Coolant Pump (RCP) thermal barrier component cooling water supply isolation valve, MOV-3(4)-716A
- RCP thermal barrier component cooling water supply isolation valve, MOV-3(4)-716B
- RCP thermal barrier component cooling water return isolation valve, MOV-3(4)-626
- Coolant charging pumps 4A, 4B and 4C

The team reviewed the capability to safely shutdown given a fire in FZ 67 causes a loss of the normal power source to the Unit 4 safety-related buses. Specifically, the control circuit for emergency diesel generator 4A was reviewed in terms of the potential for permissives and interlocks to be affected by a fire in the 4B 4160 V switchgear room.

The MCR (remote) and in-plant manual operator actions (local) for controlling plant operation, fire response, and achieving an SSD condition in response to a severe fire in FZ 63 or 67, were reviewed and walked down by the inspectors. To accomplish this task, the inspectors evaluated the following Off-Normal Operating Procedures (ONOP):

- 0-ONOP-016.8, Response to a Fire/Smoke Detection System Alarm
- 0-ONOP-016.10, Pre-Fire Plant Guidelines and Safe Shutdown Manual Actions
  - Pre-fire Plan, Fire Zone No. 63, Unit 3 Reactor Control Rod Equipment Room
  - Pre-fire Plan, Fire Zone No. 67, 4160 V Switchgear 4B Room

The procedure reviews focused on ensuring that all required functions for post-fire safe shutdown, and the corresponding equipment necessary to perform those functions, were included in the procedures. The team walked down each pre-fire plan listed above to verify that local manual operator actions were feasible and could be performed in a timely manner.

b. Findings

1. Failure to Prevent Spurious Operation of Valve MOV-4-626 For a Severe Fire in 4B 4160 V Switchgear Room

Introduction: A finding was identified for failure to protect the control circuit of motor operated valve (MOV) MOV-4-626, RCP thermal barrier component cooling water return isolation valve, to prevent spurious operation during a fire in FA U (FZ 67). The finding is an unresolved item (URI) pending completion of the significance determination process (SDP).

Description: Per the SSAR, thermal barrier cooling is the assured method for protecting the RCP seals during a severe fire in FZ 67 because charging pump seal injection flow may be terminated by operator action or lost due to the fire. Valve MOV-4-626 is a motor operated valve in the thermal barrier component cooling water (CCW) header returning from all three Unit 4 RCPs. The valve can be controlled from either the MCR (FZ 106) or the ASP [which is located in the 4B 4160V switchgear room (FZ 67)]. Because the control cable for this valve terminates at the ASP and the cable is unprotected, thermal insult to the control circuit for the valve could cause it to spuriously close. Closure of the valve would stop thermal barrier cooling return flow from all three Unit 4 RCPs. Guidance in 0-ONOP-016.10, Pre-fire Plan Fire Zone 67, directs local manual operator actions to prevent, or recover from, spurious closure of MOVs that could interrupt thermal barrier cooling. For FZ 67, thermal barrier cooling valves MOV-4-716B and MOV-4-626 could be subject to spurious operation but the inspectors found that MOV-4-626 was not included in the procedure.

The inspectors found that on September 9, 2003, the licensee had identified an error in the SSA Essential Equipment List, in that, MOV-4-626 was not properly classified as being required to assure SSD. As a result, the fire response procedure failed to include MOV-4-626 as part of the mitigation strategy against spurious valve operation. The issue was entered into the licensee's corrective action program (CAP) as condition report (CR) 03-1330-1. The need to review and update 0-ONOP-016.10 was entered into the CAP as CR 04-0292; but, this deficiency was not resolved prior to the inspection. During the inspection, the licensee resolved this concern by issuing an on-the-spot-change to 0-ONOP-016.10 which specified manual actions to de-energize and verify open MOV-4-626. The licensee documented this action in its CAP as CR 04-0610.

Analysis: The finding adversely impacted the reliability and capability of equipment required to achieve and maintain a safe shutdown condition following a severe fire. The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. This finding is applicable to FZ 67 and is unresolved pending completion of a significance determination.

Enforcement: 10 CFR 50.48 (b)(1) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of Appendix R, Section III.G. Section III.G.2 states, in part, 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 primary containment, one of three means of ensuring that one of the redundant trains is free of fire damage shall be provided.

Contrary to the above, on February 13, 2004, the inspectors identified that the licensee failed to protect control circuits and cables that could cause maloperation of MOV-4-626 in the RCP thermal barrier cooling system. This condition existed since at least September 9, 2003, when it was first identified by the licensee. The finding and related violation are unresolved pending completion of a significance determination. This finding is identified as URI 05000251/2004007-001, Failure to Prevent Spurious Operation of Valve MOV-4-626 For a Severe Fire in 4B 4160 V Switchgear Room.

## 2. Local Manual Operator Actions to Protect RCP Seal Package Cooling Not Timely

Introduction: A finding was identified for failure to ensure that local manual operator actions used to verify correct alignment of RCP seal package thermal barrier cooling valves were completed in a timely manner for fires in either FA T (FZ 63) or FA U (FZ 67). The finding is a URI pending completion of the SDP.

Description: Per the SSAR, thermal barrier cooling is the assured method for protecting the RCP seals during a severe fire in FZ 63 or FZ 67 because charging pump seal injection flow may be terminated by operator action or lost due to the fire. In lieu of protecting the control circuits and cables for the RCP thermal barrier cooling valves [MOV-3-716B and MOV-3-626 in FZ 63; and MOV-4-716B in FZ 67], guidance in 0-ONOP-016.10 directs local manual operator actions to prevent, or recover from, spurious closure of the MOVs. When evaluating the feasibility of the manual actions using the guidance in the inspection procedure, the inspectors identified that 0-ONOP-016.10 allowed 20 minutes to complete the operator actions for verification of thermal barrier cooling valve alignment. However, industry analyses [Westinghouse Direct Work No. DW-94-011; Westinghouse WCAP-10541, Revision 2; and Westinghouse WCAP-15603, Revision 1-A] have determined that seal package damage could occur within 13 minutes of loss of all seal package cooling. Thus, the operator guidance provided in 0-ONOP-016.10 does not provide timely action and could possibly result in an RCP seal LOCA. Loss of reactor coolant system (RCS) inventory due to an RCP seal LOCA could be beyond the capacity of equipment dedicated to achieve and maintain post-fire safe shutdown. The licensee entered the finding into its CAP as CR 04-0688 and resolved this concern by revising 0-ONOP-016.10.

Analysis: The finding adversely impacted the reliability and capability of equipment required to achieve and maintain a safe shutdown condition following a severe fire. The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. The finding is applicable to FZ 63 and FZ 67 and is unresolved pending completion of a significance determination.

Enforcement: 10 CFR 50.48 (b)(1) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of Appendix R, Section III.G. Section III.G.2 states, in part, 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 primary containment, one of three means of ensuring that one of the redundant trains is free of fire damage shall be provided.

Contrary to the above, on February 13, 2004, the inspectors identified that the licensee failed to protect control circuits and cables that could cause maloperation of necessary valves in the RCP thermal barrier cooling system. This condition has since at least February 9, 2001, when the applicable procedure page was last revised. This finding and related violation are unresolved pending completion of a significance determination. This finding is identified as URI 05000250,251/ 2004007-002, Local Manual Operator Actions to Protect RCP Seal Package Cooling Not Timely.

3. Local Manual Operator Actions Not Evaluated for Loss of Security Card Key Access for a Severe Fire in 4B 4160 V Switchgear Room

Introduction: A finding was identified for failure to evaluate and mitigate the effects of loss of security card key access to rooms where local manual operator actions are performed for a fire in FA U (FZ 67). The finding is a URI pending completion of the SDP.

Description: Access to the 4B 4160 V switchgear room (FZ 67) is controlled by a security card key reader system. A fire in FZ 67 could potentially cause thermal insult to the reader's control circuit located within the room and in some scenarios cause the door mechanism to fail in the locked position. The inspectors questioned whether failure of the security card key reader in FZ 67 would impede operator access to other rooms during performance of SSD local manual operator actions. The licensee had not analyzed the routing of security system cables. To address potential access issues for the fire brigade at the site of a fire, a security officer responds to all fires with a vital area key. However, investigation revealed that security card key readers for FZ 68 (4A 4160 V switchgear room) and for FZ 93/94 (Unit 4, 480 V Load Centers A and B Room and Unit 4, 480 V Load Centers C and D Room, respectively) could potentially lose card key function as a result of a fire in FZ 67; thus impeding operator access to these rooms. The inspectors identified six steps in Pre-fire Plan 67 of 0-ONOP-016.10 that must be performed in FZ 68 or FZ 93/94 within 15 minutes of a fire in FZ 67. However, procedural guidance to ensure access to these rooms (e.g., keys or security support) to perform these time critical local manual operator actions was not included in 0-ONOP-016.10. As a result, the inspectors determined that local manual operator actions in these fire zones may be delayed and could adversely affect achieving SSD conditions. The licensee entered the finding into its CAP as CR 04-0700.

Analysis: The finding adversely impacted the reliability and capability of equipment required to achieve and maintain a safe shutdown condition following a severe fire. The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone

objective. The finding degraded the defense-in-depth for fire protection. The finding is applicable to FZ 67 and is unresolved pending completion of a significance determination.

Enforcement: 10 CFR 50.48 (b)(1) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of Appendix R, Section III.G. Section III.G.2 states, in part, 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 primary containment, one of three means of ensuring that one of the redundant trains is free of fire damage shall be provided.

Contrary to the above, on February 13, 2004, the licensee failed to protect control circuits and cables that could cause maloperation of equipment necessary to achieve and maintain safe shutdown for fires in FZ 67. This condition has existed since at least February 9, 2001, when the applicable procedure pages were last revised. This finding and related violation are unresolved pending completion of a significance determination. The finding is identified as URI 05000251/2004007-003, Local Manual Operator Actions Not Evaluated for Loss of Security Card Key Access For a Severe Fire in 4B 4160 V Switchgear Room.

.02 Fire Protection of Safe Shutdown Capability

a. Inspection Scope

For the selected fire areas, the inspectors evaluated the frequency of or potential for fires, the combustible fire load characteristics and potential exposure fire severity, the separation of systems necessary to achieve SSD, and the separation of electrical components and circuits to ensure that at least one SSD path was free of fire damage. The inspectors reviewed selected portions of the Fire Protection Program Report (FPPR), which includes the fire hazards analysis (FHA), to determine if the licensee's commitments, as established in the fire protection licensing basis documents, were satisfied.

The inspectors reviewed the following documents, which establish and implement controls and practices to prevent fires and to control the storage of permanent and transient combustible materials and ignition sources, to verify that the objectives established by the NRC-approved FPP were satisfied.

- Fire Protection Procedure 0-ADM-016, Fire Protection Program
- Turkey Point Information Bulletin Number 03-26, Smoking Policy
- Turkey Point Combustible Storage Locker List
- Turkey Point Transient Combustible Permits issued from January 2001, for FZs 63, 67, and 106
- Fire Protection Procedure 0-ADM-016.1, Transient Combustible and Flammable Substances Program
- Fire Protection Procedure 0-ADM-016.5, Hot Work Program
- Quality Instruction QI 2-PTN-4, Housekeeping

The inspectors toured the selected plant fire areas to observe: (1) the material condition of fire protection systems and equipment, (2) the storage of permanent and transient combustible materials, and (3) the licensee's implementation of the procedures for limiting fire hazards, combustible waste collection, housekeeping practices, and cleanliness conditions. These reviews were accomplished to ensure that the licensee was maintaining the fire protection systems, had properly evaluated in-situ combustible fire loads, controlled hot-work activities, and limited transient fire hazards in a manner consistent with the UFSAR, administrative procedures and other fire protection program procedures.

The inspectors examined the fire protection barriers and selected combustible oil-retention basins to confirm installation was in accordance with the applicable separation and design requirements stated above. To address the issue of separation of redundant electric circuits located in the same fire area, the team determined which unprotected cables penetrated the wall between the 4A and 4B 4160 V switchgear rooms. The function of each of these cables was reviewed by the team to ascertain whether a fire in one switchgear room could affect the capability of equipment in the other room to achieve safe shutdown.

Fire brigade response and emergency/incident reports for 2002 and 2003, selected fire safety inspection reports, as well as CRs resulting from fire, smoke, sparks, arcing, and equipment overheating incidents were reviewed. This review was conducted to assess the effectiveness of the fire prevention program and any maintenance-related or material condition problems related to fire incidents. Additionally, design control procedures were reviewed to determine if plant changes were adequately reviewed for the potential impact on the fire protection program, SSD equipment, and procedures as required by the FPP.

The inspectors reviewed operator and fire brigade staffing, fire brigade response, fire brigade qualification training and drill program procedures, and fire brigade drill critiques for brigade shifts from January 2001 - May 2003. The reviews were performed to determine whether fire brigade drills had been conducted in high fire risk plant areas and whether fire brigade personnel qualifications, drill response, and performance met the requirements of the FPP.

The inspectors walked down the fire brigade staging and dress-out areas in the turbine building to assess the operational readiness of fire fighting and smoke control equipment. Fire brigade personal protective equipment located at both of the fire brigade dress-out areas and fire brigade house were reviewed to evaluate equipment accessibility and functionality. The fire brigade self-contained breathing apparatuses were reviewed for adequacy as well as the availability of supplemental breathing air tanks and the capability to refill these tanks.

The inspectors reviewed fire fighting pre-fire plans for the selected fire areas to determine if appropriate information was provided to fire brigade members to identify SSD equipment and instrumentation, and to facilitate suppression of a fire that could impact safe shutdown capability. The inspectors walked down the selected fire areas to compare the associated pre-fire plans and drawings with as-built plant conditions. This was done to verify that fire fighting pre-fire plans and drawings were consistent with the

fire protection features and potential fire conditions described in the FPPR. In addition, the team reviewed drawings and engineering calculations associated with fire suppression-caused flooding for a fire in FZ 67. The review focused on the floor and equipment drain systems to confirm that actions required for SSD would not be inhibited by fire suppression activities or leakage from manual fire suppression systems within the fire area or from an adjacent area.

The inspectors reviewed licensee engineering department standards and design control procedures to verify that plant changes were adequately reviewed for the potential impact on the FPPR, SSD equipment, and procedures as required by Turkey Point Operating License Condition 3.D. The inspectors reviewed criteria in licensee engineering standard STD-M0006, Engineering Guidelines for Fire Protection, and QI-PTN-1, Design Control, to verify that risk significant plant modifications were developed, reviewed, and approved per the procedure requirements.

b. Findings

Failure to Provide Adequate Concrete Curb Height and Volume for the Unit 4 Generator Hydrogen and Seal Oil Unit Oil-Retention Basin

A finding was identified in that the curbing height and volume of the oil-retention basin for the Unit 4 Generator Hydrogen and Seal Oil Unit would not fully contain an inadvertent oil spill from the unit, thereby preventing an oil-based fire from spreading to surrounding areas or into the turbine building floor drain system. A failure of the Unit 4 generator hydrogen and seal oil unit tank, piping or joints could overflow the existing 6-inch curb, spread oil onto the turbine building floor and into two nearby floor drains on the east and west sides of the curbed oil-retention basin. Hot energized equipment located in the vicinity could ignite this combustible oil resulting in a wide-area fluid fire. The inspectors were concerned that the oil-retention basin curbing height and volume would not prevent inadvertent oil flow or oil-based fire from spreading to surrounding areas and to the drainage system as described in the Turkey Point UFSAR. The licensee entered this issue into its CAP as CR 04-0477.

Pending additional NRC inspection, this finding is identified as URI 05000251/2004007-004, Inadequate Concrete Curb Height and Volume for the Unit 4 Generator Hydrogen and Seal Oil Unit Oil-Retention Basin.

.03 Post-fire Safe Shutdown Circuit Analysis

a. Inspection Scope

Using the SSAR, the inspectors reviewed how systems would be used to achieve and maintain reactivity control, over-pressure protection, inventory control with high or low pressure injection systems, and residual heat removal during and following a fire in the areas selected for inspection. The inspection specifically focused on the minimum required systems and equipment necessary to achieve and maintain hot shutdown conditions because damage to these systems could pose a significantly greater risk than damage to systems required to achieve cold shutdown conditions.



The team made a detailed review of a number of valves, instruments and other equipment relative to a postulated fire in each of the selected three fire areas. This review included examination of the licensee's essential equipment list, power supply, essential cable list with routing information, resolution of potential problem cables, elementary control diagrams and special fire response procedures. The inspectors walked down these fire areas to compare the actual plant configuration to the layout indicated on the drawings.

The potential for spurious valve operation or malfunction was considered in the period immediately following a fire and in the period after operator realignment to hot standby mode but before fire extinguishment. The inspectors also utilized this information to determine if the requirements of 10 CFR 50, Appendix R, Section III.G.2 (for protection of control and power cables) were met. In the case of a severe control room fire, alternative safe shutdown capability was considered. The applicable criterion was that a fire would not degrade the ability to safely shutdown from the ASP. The components and equipment included in the review are listed in the attachment. Unit 3 components were reviewed in relation to the MCR and the Unit 3 Reactor Control Rod Equipment Room, and Unit 4 components were reviewed in relation to the 4B 4160 V switchgear room.

Coordination of alternating current power and direct current (DC) control protective devices was considered in terms of fire-induced short circuits resulting in loss of SSD capability. Specific control circuits reviewed were LCV-3/4-115B and the 4B component cooling water pump breaker.

b. Findings

Failure to Prevent Spurious Operation of Charging Pump Suction From RWST Valves LCV-3-115B and LCV-4-115B

Introduction: A finding was identified for failure to protect the control circuits for level control valves (LCV) LCV-3-115B and LCV-4-115B, RWST to charging pump valves, to prevent spurious operation during a fire. This finding is applicable to FA T (FZ 63) on Unit 3 and FA U (FZ 67) on Unit 4. The finding is a URI pending completion of the SDP.

Description: Per the SSAR, charging pump flow from the RWST is the assured method for providing makeup water to the RCS. Valve LCV-3/4-115B is an air powered, solenoid-controlled valve in a flow path between the RWST and the charging pumps suction header. Electric power for the valve is 125 VDC, and the logic is "energize to open." The valve can be controlled from the MCR or the ASP. Because the control cable for this valve is unprotected in FZ 63 and FZ 67, thermal insult to the control circuit for the valve could cause the valve to spurious close.

The team noted procedure 0-ONOP-016.10 directs the operators to stop the 3A charging pump, if it is running, immediately after the start of a fire in FZ 63 (4A charging pump for FZ 67). Valve LCV-3/4-115B is opened within one hour from the control room to establish the RWST as a suction source for the charging pumps. Procedure 0-ONOP-016.10 then directs starting the 3A charging pump (4A charging pump for FZ 67). If valve LCV-3/4-115B spurious closes due to a fire-induced thermal insult, loss of

the RWST as a suction source could lead to charging pump damage. Two other charging pumps are installed. For FZ 63, the 3B charging pump would not be available if 3A charging pump is damaged. However, the 3C charging pump would be available to provide RCS makeup flow. For FZ 67, the 4B pump may not have power because it is powered from the 4B 4160 V bus which is in FZ 67. The 4C pump, a Train A/B swing pump, would not be available because its power supply is procedurally tripped due to diesel generator loading considerations. The licensee entered this finding into its CAP as CR 04-0683 and resolved this concern by revising 0-ONOP-016.10.

Analysis: The finding adversely impacted the reliability and capability of equipment required to achieve and maintain a safe shutdown condition following a severe fire. The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. This finding is applicable to FZ 63 and FZ 67 and is unresolved pending completion of a significance determination.

Enforcement: 10 CFR 50.48 (b)(1) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of Appendix R, Section III.G. Section III.G.2 states, in part, 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 primary containment, one of three means of ensuring that one of the redundant trains is free of fire damage shall be provided.

Contrary to the above, on February 13, 2004, the inspectors identified that the licensee failed to protect control circuits and cables that could cause maloperation of valves LCV-3-115B and LCV-4-115B. This condition has existed since at least February 9, 2001, on Unit 3 and since at least May 9, 2001, on Unit 4, when the applicable procedure pages were last revised. The finding and related violation are unresolved pending completion of a significance determination. This finding is identified as URI 05000250,251/2004007-005, Failure to Prevent Spurious Operation of Charging Pump Suction From RWST Valves LCV-3-115B and LCV-4-115B.

#### .04 Alternative Shutdown Capability

##### a. Inspection Scope

The licensee's SSAR and plant configuration were reviewed to determine the components and systems necessary to achieve and maintain SSD conditions from the ASP in the event of fire in the MCR. The objectives of this evaluation were to:

- Verify that the licensee's alternative shutdown methodology had correctly identified the components and systems necessary to achieve and maintain an SSD condition.
- Confirm the adequacy of the systems selected for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring and support system functions.
- Verify that hot and cold shutdown from outside the MCR can be achieved and maintained with offsite power available or not available.

Because Train B is relied upon to achieve SSD during a severe fire in the MCR and offsite power may be lost, the team evaluated Unit 4's Train B 4160 V normal power supply circuit breaker to determine if it could be disabled due to the fire and possibly prevent the Train B emergency diesel generator output breaker from closing. Additionally, the team reviewed a sample of control circuits and fuse coordination applications to confirm that transfer of controls from the MCR to the ASP would not be affected by fire in the control room.

b. Findings

No findings of significance were identified.

.05 Operational Implementation of Alternative Shutdown Capability

a. Inspection Scope

The team reviewed the operational implementation of the alternative SSD capability that would be used during a severe fire in the MCR (FZ 97, 106 and 106R). This review functioned to determine if: (1) the training program for licensed personnel included alternative SSD capability; (2) personnel required to achieve and maintain the plant in hot standby following a fire using the ASP could be provided from normal onsite staff, exclusive of the fire brigade; (3) the licensee had incorporated the operability of alternative shutdown transfer and control functions into plant administrative procedures; and (4) the licensee periodically performed operability testing of the alternative shutdown instrumentation, and transfer and control functions.

The team reviewed and walked down the following procedures that implemented the licensee's alternative SSD strategy:

- 0-ONOP-105, Control Room Evacuation
  - Attachment 5, Third Licensed Reactor Control Operator
  - Attachment 7, Non-fire Brigade Number 1 Senior Nuclear Plant Operator
  - Attachment 8, Non-fire Brigade Number 2 Senior Nuclear Plant Operator

The procedure reviews focused on ensuring that all required functions for post-fire safe shutdown, and the corresponding equipment necessary to perform those functions, were included in the procedures. The team walked down each attachment listed above to verify that local manual operator actions were feasible and could be performed in a timely manner.

b. Findings

1. Local Manual Operator Actions to Protect RCP Thermal Barrier Cooling Valves MOV-3-716A and MOV-4-716A Not Timely

Introduction: A finding was identified for failure to ensure local manual operator actions to verify correct alignment of MOV-3-716A and MOV-4-716A, Unit 3 and Unit 4 RCP

thermal barrier component cooling water supply isolation valves, were completed in a timely manner for a fire in FA MM (FZ 106, 106R, or 97). The finding is a URI pending completion of the SDP.

Description: Fire Area MM includes the MCR, the MCR roof, and the Unit 3 and 4 mechanical equipment room. Per the SSAR, thermal barrier cooling is the assured method for protecting the RCP seals during a severe fire in FA MM because charging pump seal injection flow may be terminated by operator action or lost due to the fire. Guidance in 0-ONOP-105 directs local manual operator actions to prevent, or recover from, spurious closure of MOVs that could interrupt thermal barrier cooling. The inspectors identified that 0-ONOP-105, Attachment 7 (Unit 3) and Attachment 8 (Unit 4) allowed 20 minutes to complete the operator actions for verifying that MOV-3-716A and MOV-4-716A were open. However, industry analyses [Westinghouse Direct Work No. DW-94-011; Westinghouse WCAP-10541, Revision 2; and Westinghouse WCAP-15603, Revision 1-A] have determined that seal package damage could occur within 13 minutes of loss of all seal package cooling. Thus, the operator guidance provided in 0-ONOP-105 does not provide timely action and could possibly result in an RCP seal LOCA. Loss of RCS inventory due to an RCP seal LOCA could be beyond the capacity of equipment dedicated to achieve and maintain post-fire safe shutdown. The licensee entered the finding into its CAP as CR 04-0688 and resolved this concern by revising 0-ONOP-105.

Analysis: The finding adversely impacted the reliability and capability of equipment required to achieve and maintain a safe shutdown condition following a severe fire. The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. This finding is applicable to FA MM and is unresolved pending completion of a significance determination.

Enforcement: 10 CFR 50.48 (b)(1) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of Appendix R, Section III.G. Section III.G.3 states that alternative shutdown capability should be provided where the protection of systems whose function is required for hot shutdown, does not satisfy the requirements of III.G.2. Section III.L of Appendix R provides requirements to be met by alternative shutdown methods. Section III.L.2.b states, in part, that "The reactor coolant makeup function shall be capable of maintaining the reactor coolant level...within the level indication in the pressurizer in PWRs."

Contrary to the above, on February 13, 2004, the inspectors identified that the alternative shutdown capability specified for a fire in the Fire Area MM did not meet this requirement. Specifically, the licensee's procedure may not mitigate a spurious closure of valves MOV-3-716A and MOV-4-716A in a timely manner, possibly resulting in an RCP seal LOCA, and pressurizer level dropping below the indicating range. This condition has existed since at least April 24, 2002, when the applicable procedure pages were last revised. This finding and related violation are unresolved pending completion of a significance determination. This finding is identified as URI 05000250,251/2004007-006, Local Manual Operator Actions to Protect RCP Thermal

Barrier Cooling Valves MOV-3-716A and MOV-4-716A For Control Room Evacuation Not Timely.

2. Local Manual Operator Actions Not Evaluated for Availability of Security Support

Introduction: A finding was identified for local manual operator actions that may not be timely due to reliance on security support to bring a vital area security key to access normally locked rooms which do not have a security card key readers. The finding is a URI pending completion of the SDP.

Description: The inspectors identified that certain local manual operator actions for a fire in FA MM (FZ 106, 106R, or 97) require access to rooms through doors that are only accessible with a vital access security key (i.e., no security card key readers are installed at these doors). Operators do not carry vital access security keys with them and O-ONOP-105 does not require vital access security keys be brought when the MCR is evacuated. Instead, security support is required to bring access keys to the operator. However, operator access to key-locked rooms is not ensured because security support could be diverted to higher priority activities. Consequently, local manual operator actions may be delayed and may not be completed in a timely manner to ensure that safe shutdown is achieved. The licensee entered the finding into its CAP as CR 04-0700 and resolved this concern by adding a security key to the operator key rings.

Analysis: The finding adversely impacted the reliability and capability of equipment required to achieve and maintain a safe shutdown condition following a severe fire. The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. This finding is applicable to FA MM and is unresolved pending completion of a significance determination.

Enforcement: 10 CFR 50.48 (b)(1) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of Appendix R, Section III.G. Section III.G.3 states that alternative shutdown capability should be provided where the protection of systems whose function is required for hot shutdown, does not satisfy the requirements of III.G.2. Section III.L of Appendix R provides requirements to be met by alternative shutdown methods. Section III.L.2.b states, in part, that "The reactor coolant makeup function shall be capable of maintaining the reactor coolant level...within the level indication in the pressurizer in PWRs."

Contrary to the above, on February 13, 2004, the alternative shutdown capability specified for a fire in Fire Area MM did not meet this requirement. Specifically, operator access to key-locked rooms is not ensured because security support could be diverted to higher priority activities. Consequently, local manual operator actions may be delayed and may not be completed in a timely manner to ensure that RCP thermal barrier cooling is protected/restored, thereby ensuring an RCP seal LOCA does not occur and ensuring that pressurizer level remains in the indicating range. This condition has existed since at least April 24, 2002, when the applicable procedure pages were last revised. This finding and related violation are unresolved pending completion of a

significance determination. This finding is identified as URI 05000250,251/2004007-007, Local Manual Operator Actions For Control Room Evacuation Not Evaluated for Availability of Security Support.

.06 Communications

a. Inspection Scope

The inspectors reviewed plant communication capabilities to evaluate the availability of the communication systems to support plant personnel in the performance of SSD local manual operator actions, fire event notification, and fire brigade fire fighting duties. The inspectors walked down sections of the fire protection equipment surveillance procedures and observed operational checks of the fire brigade portable radios. The inspectors also assessed the radio system repeater tower and power equipment for proper operation and vulnerability to a fire in the selected fire areas. In addition, the inspectors reviewed the fire brigade drill critiques to identify any history of operational or performance problems with the fire brigade command post radio communications during fire drills. In addition, the team reviewed the fire brigade radio communications systems to assess whether the licensee's radio channel features would continue to operate should the radio repeaters for the primary communications system be unavailable.

b. Findings

No findings of significance were identified.

.07 Emergency Lighting

a. Inspection Scope

The inspectors reviewed the design, placement, operation, and periodic testing procedures for DC self-contained battery powered emergency lighting units (ELU) and dedicated, battery powered portable ELUs. The inspectors evaluated the capability of the ELUs to support plant personnel in the performance of SSD functions, including local manual operator actions, and for illuminating access and egress routes to the areas where those manual actions would be performed. The inspectors checked that these battery power supplies were rated with at least an 8-hour capacity, as required by Section III.J of 10 CFR 50, Appendix R. During inspector walk downs of the plant areas where operators performed local manual actions, the inspectors inspected area ELUs for proper operation and checked the aiming of lamp heads to determine if sufficient illumination would be available 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. The inspectors also reviewed completed surveillance and maintenance procedures and test records to ensure that the licensee properly maintained the lighting equipment.

The inspectors observed whether emergency exit lighting was provided for personnel evacuation pathways to the outside exits as identified in the National Fire Protection Association (NFPA) 101, Life Safety Code, and the Occupational Safety and Health Administration (OSHA) Part 1910, Occupational Safety and Health Standards. This

review also included examination of whether backup emergency lighting was provided for access pathways to the fire brigade staging and dress-out areas in support of fire brigade operations should power fail during a fire emergency.

b. Findings

No findings of significance were identified.

.08 Cold Shutdown Repairs

a. Inspection Scope

The licensee's SSAR did not identify a need for post-fire repairs to achieve a cold shutdown condition. Thus, cold shutdown repairs were not reviewed during this inspection. However, the inspector's reviewed the Unit 3 General Operating Procedure (GOP) 3-GOP-305, Hot Standby to Cold Shutdown, to evaluate those components and instruments used to achieve cold shutdown and assessed the availability of this equipment (without repair) following a severe fire in the Unit 3 Reactor Control Rod Equipment Room (FZ 63).

b. Findings

No findings of significance were identified.

.09 Fire Barriers and Fire Area/Zone/Room Penetration Seals

a. Inspection Scope

The inspectors reviewed the selected fire areas to evaluate the adequacy of the fire resistance of fire area barrier enclosure walls, ceilings, floors, fire barrier mechanical and electrical penetration seals, fire doors, and fire dampers to ensure that at least one train of SSD equipment would be maintained free of fire damage. The inspectors selected several fire barrier features for detailed evaluation and inspection to verify proper installation and qualification. The inspectors walked down the selected fire areas to observe the material condition and configuration of the installed fire barrier features. The inspectors also reviewed construction details and supporting fire endurance tests for the installed fire barrier features to verify the as-built configurations were qualified by appropriate fire endurance tests. In addition, the inspectors reviewed the FHA to verify the fire loading used by the licensee to determine the fire resistance rating of the fire barrier enclosures.

The inspectors conducted a detailed inspection of the two fire rated concrete block fire walls in FZ 67 to confirm proper qualification and installation. Additionally, the inspectors reviewed the design and qualification testing of four fire doors from FZ 63 and 67 as well as the surveillance procedures for these fire doors. These reviews were performed to ensure that the passive fire barriers were properly maintained and met the licensing and design bases as described in the licensing submittals, NRC SERs, and the FPPR.

The inspectors selected seven penetration fire seals (063S-E003, 063E-E005, 063F-E006, 067N-E002, 067N-E003, 067S-E006, and 067W-E001) in FZ 63 and 67. A detailed inspection of these seals was conducted to confirm proper qualification and installation. The inspectors reviewed the installation instructions for the mechanical and electrical penetrations, the penetration seal database, Generic Letter 86-10 evaluations, and the fire protection penetration seal deviation analysis to verify that the fire barrier installations met design requirements and license commitments. The inspectors also compared the penetration seal ratings with the ratings of the barrier enclosures in which they were installed. In addition, the inspectors reviewed a summary of completed surveillance and maintenance procedures for the selected fire barrier walls to verify the fire seals were being adequately inspected and maintained.

The team reviewed abnormal operating fire procedures, selected fire fighting pre-plans, fire damper location and detail drawings, and heating, ventilation and air conditioning system drawings to verify that access to shutdown equipment and selected operator manual actions would not be inhibited by smoke migration from one area to adjacent plant areas used to accomplish SSD. The inspectors reviewed the design, installation details, and qualification testing for two mechanical fire dampers in the MCR to verify that the damper installations met design requirements and license commitments.

b. Findings

No findings of significance were identified.

.10 Fire Protection Systems, Features and Equipment

a. Inspection Scope

The inspectors reviewed SSAR calculations, vendor documentation, flow diagrams, cable routing information, operational valve lineup procedures, and system availability studies associated with the fire pumps and fire protection water supply system. The review evaluated whether the common fire protection water delivery and supply components could be damaged or inhibited by fire-induced failures of electrical power supplies or control circuits. The inspectors examined the electric motor-driven fire pump and diesel-driven fire pump to observe system material condition, evaluate the consistency of as-built configurations with engineering drawings, and determine proper system controls and valve lineups. Additionally, the inspectors reviewed periodic surveillance and functional operability test procedures for the fire pumps to assess whether the test program was sufficient to verify proper operation of the fire protection water supply system.

For the selected fire areas, the inspectors reviewed the adequacy of the design, installation, and operation of the automatic detection and alarm system to actuate in the early stages of a fire. This included walk downs of the system and an examination of the types of detectors, detector spacing, and the licensee's technical evaluation of the detector locations, and the ceiling reinforcing plans, as shown on location drawings. The inspectors also reviewed the licensee's submittals and associated NRC SERs for the selected fire areas. These reviews were performed to ensure that the fire detection systems for the selected fire areas were installed in accordance with the design and



licensing bases of the plant. Additionally, the team reviewed fire detection surveillance procedures and the detection system operating requirements specified in 0-ADM-016 to determine the adequacy of fire detection component testing and to ensure that the detection systems could function when needed.

The inspectors reviewed the manual suppression standpipe and fire hose system to verify adequate design, installation, and operation in the selected fire areas. The inspectors examined flow measurement/pressure test data to verify that sufficient pressure and flow volume were available to produce effective fire hose nozzle patterns. During plant walkdowns, the inspectors observed placement of the fire hoses and extinguishers to confirm consistency with the fire fighting pre-plan drawings. Additionally, the inspectors checked a sample of fire hose lengths to confirm they could reach the affected fire zones in support of manual fire fighting efforts.

b. Findings

1. Potentially Inadequate Ionization Smoke Detector Placement and Spacing in the 4B 4160 V Switchgear Room

A finding was identified in that the placement of the ionization product of combustion (POC) detectors installed in the 4B 4160 V switchgear room, which deviated from the Underwriter's Laboratory (UL) tested configuration, was not adequately evaluated. The licensee installed ten ionization POC detectors in the room. Six detectors were installed over cable trays that were routed along the north and south sides of the room. Four were installed at the ceiling height of 23 feet. Ionization POC detectors are listed by UL to be installed on a smooth ceiling that does not exceed 15 feet 9 inches in height with a maximum distance between detectors of 30 feet. The inspectors were concerned that the detectors, in the current configuration, will not quickly detect early stage flaming or smoldering fires in the 4B 4160 V Switchgear Room as described in the Turkey Point UFSAR. The licensee entered this issue into the CAP as CR 04-0686.

Pending additional NRC inspection, this is identified as URI 05000251/2004007-008, Potentially Inadequate Ionization Smoke Detector Installation in the 4B 4160 V Switchgear Room.

2. Failure to Install Detection and Fixed Suppression in Fire Zone 97

Introduction: A non-cited violation (NCV) of 10 CFR 50, Appendix R, Section III.G.3 and License Condition 3.D was identified for failure to provide full area fire detection and a fixed suppression system in the Unit 3 and 4 mechanical equipment room for fires in Fire Area (FA) MM [Fire Zone (FZ) 97].

Description: On January 28, 2004, the inspectors walked down the fire protection features of FZ 97. This room contained the safety-related emergency recirculating filter unit and air handling supply fans for the MCR. Unprotected ventilation control cables and safety-related process monitoring cables were also routed within the room. As part of FA MM, the FPPR identified the room as an alternative SSD area [along with the MCR (FZ 106) and the control room roof (FZ 106R)]. The inspectors observed that no full area detection system existed on the ceiling areas or within beam pockets above the

emergency filter unit or air handling supply fans. Additionally, the room did not have a full area fixed suppression system. The inspectors noted that one duct-mounted smoke detector was installed within the emergency recirculating filter unit exhaust duct. However, the function of this detector was to detect a fire within the charcoal filter unit and not to provide area detection.

The licensee determined that the emergency filter unit and air handling supply fans were cross-train safety-related equipment used for the emergency recirculating mode of MCR heating ventilation and air conditioning (HVAC) operation. As such, they were neither protected nor credited for Appendix R safe shutdown. However, the emergency recirculating air handling motors are credible fire ignition sources such that a single fire could damage cross-train safety-related systems or components. The licensee declared the detection and suppression inoperable on the day of discovery and established an hourly roving fire watch for FZ 97 (and 106R).

Analysis: The finding adversely affected the fire detection and suppression capability defense-in-depth elements. The finding is greater than minor because it is associated with the protection against external factors attribute and degraded the reactor safety mitigating systems cornerstone objective. The inspectors analyzed the finding using Manual Chapter 0609, Appendix F. Because neither fire detection nor fixed suppression were available in FZ 97, Phase 1 directed that a Phase 2 analysis be performed. Because the fire ignition frequency was low (the emergency recirculating air handling motors are not continuously used), the fire detection in the emergency recirculating filter was not degraded, and alternative shutdown systems and procedures were available to mitigate a fire in this area, the finding was determined to have very low safety significance (Green).

Enforcement: Turkey Point Operating License Condition 3.D specifies, in part, that the licensee implement and maintain in effect all provisions of the approved fire protection program as described in the UFSAR and as approved in the SER dated September 19, 1979, and subsequent supplements. Turkey Point UFSAR, Section 3.5.1, Fire Detection Systems, states that fire detection instrumentation ensures that adequate warning capability is installed in areas of the plant that contain or present a possible fire hazard to safety related components. In addition, 10 CFR 50, Appendix R, Section III.G.3 states that fire detection and a fixed fire suppression system shall be installed in the area, room, or zone where alternative or dedicated shutdown capability is being provided.

Contrary to the above, on January 28, 2004, Fire Zone 97 did not have the required full area wide detection and fixed suppression systems installed. This condition has existed since 1984 when the licensee incorporated this room as an extension of the MCR pressure boundary. Because the finding is of very low safety significance and because it has been entered into the CAP (CR 04-0688), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000250,251/2004007-009, Failure to Install Full Area Wide Detection and Fixed Suppression Systems in the Unit 3 and 4 Mechanical Equipment Room.

.11 Compensatory Measures

a. Inspection Scope

The inspectors reviewed the administrative controls for out-of-service, degraded, and/or inoperable fire protection features. The review was performed to verify that the risk associated with removing fire protection and/or post-fire systems or components from service was properly assessed and adequate compensatory measures were implemented in accordance with the approved FPP. The inspectors also reviewed the adequacy of short-term compensatory measures to compensate for a degraded function or feature until appropriate corrective actions were taken.

b. Findings

No findings of significance were identified.

.12 Fire Protection Licensing Basis

a. Inspection Scope

The inspectors reviewed licensing basis documents, including but not limited to SERs and Appendix R exemptions, to ascertain if the Turkey Point FPP was consistent, and in compliance, with 10 CFR 50.48 and 10 CFR 50, Appendix R. The inspectors evaluated and compared the licensee's SSD procedures, the FPPR, and various calculations of record against the licensing basis to measure the adequacy and consistency of the program documentation.

b. Findings

No findings of significance were identified.

#### **4. OTHER ACTIVITIES**

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed a sample of licensee audits, self-assessments and CRs to verify that items related to the Turkey Point FPP, and the capability to successfully achieve and maintain the plant in a SSD condition following a plant fire, were appropriately entered into the licensee's corrective action program in accordance with the Turkey Point quality assurance program and procedural requirements. Included in this review were CRs resulting from fire, smoke, sparks, arcing, and equipment overheating incidents for the last 18 months to assess the frequency of fire incidents and to identify any maintenance or material condition problems related to fire incidents. In addition, the team reviewed the licensee's evaluations and corrective actions for selected industry experience issues related to the fire protection area. Operating experience issues, also reviewed by the inspectors, included NRC Information Notices,

industry or vendor-generated reports of defects and noncompliance under 10 CFR Part 21, and vendor information letters. All items selected were reviewed for classification and appropriateness of the corrective actions taken, or initiated, to resolve the issues. The items reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On February 13, 2004, the lead inspector presented the inspection results to Mr. T. Jones and other members of his staff who acknowledged the findings. The licensee confirmed that proprietary information was not provided or examined during the inspection. Following completion of additional review in the Region II office, a final exit was held by telephone with Mr. W. Prevatt and other members of your staff on March 26, 2004, to provide an update on changes to the preliminary inspection findings. The licensee acknowledged the findings.

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee personnel:

V. Barry, Assistant Nuclear Plant Supervisor  
F. Busch, Fire Protection Supervisor  
S. Chaviano, Plant Engineering Manager  
A. Dunstan, Fire Protection Engineer  
M. Eades, Quality Assurance  
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J. Laduca, Engineering Mechanical Design Supervisor  
T. Miller, Maintenance Manager  
W. Parker, Licensing Manager  
M. Pierce, Plant General Manager  
W. Prevatt, Work Control Manager  
B. Stamp, Operations, Supervisor  
T. Sweeney, Engineering Electrical Supervisor  
B. Thaker, Electrical Engineer  
G. Warriner, Site Quality Manager  
A. Zielonka, Manager Engineering

#### NRC personnel:

K. Weaver, Senior Resident Inspector  
K. Green-Bates, Resident Inspector

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

#### Opened

05000251/2004007-001	URI	Failure to Prevent Spurious Operation of Valve MOV-4-626 For a Severe Fire in 4B 4160 V Switchgear Room (Section 1R05.01.b.1)
05000250,251/2004007-002	URI	Local Manual Operator Actions to Protect RCP Seal Package Cooling Not Timely (Section 1R05.01.b.2)
05000251/2004007-003	URI	Local Manual Operator Actions Not Evaluated for Loss of Security Card Key Access For a Severe Fire in 4B 4160 V Switchgear Room (Section 1R05.01.b.3)
05000251/2004007-004	URI	Inadequate Concrete Curb Height and Volume for the Unit 4 Generator Hydrogen and Seal Oil Unit Oil-Retention Basin (Section 1R05.02)

05000250,251/2004007-005	URI	Failure to Prevent Spurious Operation of Charging Pump Suction From RWST Valves LCV-3-115B and LCV-4-115B (Section 1R05.03)
05000250,251/2004007-006	URI	Local Manual Operator Actions to Protect RCP Thermal Barrier Cooling Valves MOV-3-716A and MOV-4-716A For Control Room Evacuation Not Timely (Section 1R05.05.b.1)
05000250,251/2004007-007	URI	Local Manual Operator Actions For Control Room Evacuation Not Evaluated for Availability of Security Support (Section 1R05.05.b.2)
05000251/2004007-008	URI	Potentially Inadequate Ionization Smoke Detector Installation in the 4B 4160 V Switchgear Room (Section 1R05.10.b.1)

Opened and Closed

05000250,251/2004007-009	NCV	Failure to Install Full Area Wide Detection and Fixed Suppression Systems in the Unit 3 and 4 Mechanical Equipment Room (Section 1R05.10.b.2)
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Discussed

None

## LIST OF COMPONENTS INSPECTED

### Section 1R05.03: Post-Fire Safe Shutdown Capability

<u>Component Identification</u>	<u>Description</u>
LCV-3(4)-115C	Volume control tank outlet valve (MOV)
LCV-3(4)-115B	RWST to charging pump valve (AOV)
CV-3(4)-303B	RCP 3B #1 seal leakoff control valve (AOV)
MOV-3(4)-350	Boric acid injection stop valve
HCV-3(4)-121	Charging flow control valve (AOV)
MOV-3(4)-716B	RCP thermal barrier component cooling water supply isolation valve
MOV-3(4)-626	RCP thermal barrier component cooling water return isolation valve
PI-3-406-1	RCS pressure indicator (at auxiliary shutdown panel)
LI-3-462-1	RCS pressurizer level (at auxiliary shutdown panel)
NI-4-6649B-3	Excure neutron flux detector (at auxiliary shutdown panel)
AHU 4E243B	Air handling unit
AHU 4E244A	Air handling unit
EDG 4B	Voltmeter and wattmeter (at auxiliary shutdown panel)

## LIST OF DOCUMENTS REVIEWED

### Procedures

0-ADM-016, Fire Protection Program, Rev. 01/10/02  
 0-ADM-016.1, Transient Combustible and Flammable Substances Program, Rev. 11/30/00  
 0-ADM-016.2, Fire Brigade Program, Rev. 11/01/01  
 0-ADM-016.2, Fire Brigade Program, Rev. 10/09/01  
 0-ADM-016.3, Fire Protection Impairments (FPI), Rev. 04/16/02  
 0-ADM-016.4, Fire Watch Program, Rev. 02/06/02  
 0-ADM-016.5, Hot Work Program, Rev. 11/30/00  
 0-ADM-101, Procedure Writer's Guide, Enclosure 8, Action Verb/Terms, Rev. 03/30/01  
 0-ONOP-016.10, Pre-plan Guidelines and Safe Shutdown Manual Actions, Rev. 10/04/03  
 0-ONOP-016.10, Pre-Fire Plan, Fire Zone 63, Rev. 02/09/01  
 0-ONOP-016.10, Pre-Fire Plan, Fire Zone 67, Rev. 02/09/01  
 0-ONOP-105, Control Room Evacuation, Attachments 5, 7 and 8, Rev. 10/19/03  
 0-OSP-016.23, Diesel Driven Fire Pump Operability Test, Rev. 05/23/03  
 0-OSP-016.26, Electric Driven Fire Pump Operability Test, Rev. 08/06/03  
 0-SFP-016.5, Fire Protection Equipment Surveillance, Rev. 04/12/02  
 0-SME-091.1, Fire and Smoke Detection System Annual Test, Rev. 12/10/01  
 3-OSP-300.1, Alternate Shutdown Panel 3C264 Operability Test, Rev. 09/29/03  
 3-OSP-300.2, Pre-Staging Equipment and Alternate Shutdown Panel 3C64 Switch and Instrumentation Alignment Check, Rev. 11/02/01

ATTACHMENT

3-SOP-300.2, Pre-Staging Equipment and Alternate Shutdown Panel 3C264 Switch and Instrumentation Alignment Check, Rev. 01/10/01  
 3/4-EOP-E-0, Reactor Trip or Safety Injection, Rev. 05/28/03  
 PM-016017, 60 Month Diesel Fire Pump Outlet Valve 10-757 Operability Inspection, Rev. 3102353001  
 QI 2-PTN-4, Housekeeping, Rev. 03/09/99

### Drawings

5610-A-63, Fire Walls, Doors, Dampers & Fireproofing, Rev. 12  
 5610-A-178 Series, Fire Barriers and Penetrations, Rev. 100  
 5610-C-13, Utility Piping, Main Plant Area, Rev. 20  
 5610-C-302, Control Building Ground Floor Slab, Plan and Details, Rev. 8  
 5610-C-375, Yard Tanks & Equipment Foundation Details, Rev. 7  
 5610-C-377, Transformer Foundations Concrete & Reinforcing Details, Rev. 9  
 5610-C-1354, Turbine Building Masonry Wall Modifications Sections and Details, Rev. 7  
 5610-C-1371, Turbine Building Masonry Wall Modifications Plans and Sections, Rev. 6  
 5610-E-1, Sheet 1, Main Single Line Unit 3, Rev. 33  
 5610-E-1, Sheet 2, Main Single Line Unit 4, Rev. 8  
 5610-E-27, Sheet 3Y, Elementary Diagram, Mechanical Auxiliaries Fire Pump Control Breaker 30305, Rev. 4  
 5610-E-27, Sheet 3Y1, Elementary Diagram, Mechanical Auxiliaries Fire Pump Motor P39, Rev. 1  
 5610-E-144, Tray, Conduit & Grounding Miscellaneous Details, Rev. 31  
 5610-E-761, Technical Support Center 480V Distribution Panel DP85, Rev. 8  
 5610-E-855, Breaker List for Diesel Fire Pump Area (DP-85), Rev. 325  
 5610-E-938, Fire Detection 4.16 KV Swgr. & 480V Load Center Rooms, Rev. 3  
 5610-J-539P, Instrument Loop Diagram RCS Pressure Indication Alternate Shutdown, Rev. 4  
 5610-M-430-204, Instrument Loop Diagram, Charging Pump Pressure Discharge Flow & CVCS Hand Controls, Rev. 3  
 5610-M-3016, Fire Protection System Fire Pumps, Rev. 14  
 5610-T-E-1592, Sheet 1, 125V D.C. & 120V A.C. Electrical Distribution, Rev. 39  
 5613-E-25, Sheet 5B, Elementary Diagram, Reactor Auxiliaries Charging Pump 3P201B Breaker 30203, Rev. 4  
 5613-E-25, Sheet 27C, Unit 3, Elementary Diagram, Reactor Auxiliaries Boric Acid Injection Stop Valve MOV-3-350, Rev. 2  
 5613-E-25, Sheet 32H, Unit 3, Elementary Diagram, Reactor Auxiliaries RCP Thermal Barrier CCW Supply Isolation Valve MOV-3-716B, Rev. 5  
 5613-E-25, Sheet 33A, Unit 3, Elementary Diagram, Reactor Auxiliaries RCP Thermal Barrier C.C.W. Isolation MOV, MOV-3-626, Rev. 2  
 5613-E-25, Sheet 34A, Unit 3, Elementary Diagram, Reactor Auxiliaries Volume Control Tank Low Level Isolation LCV-3-115C, Rev. 6  
 5613-E-25, Sheet 65B, Unit 3, Elementary Diagram, Reactor Auxiliaries Refueling Water Inlet Stop Valve into Charging Header - 115B, Rev. 2  
 5613-E-25, Sheet 67B, Unit 3, Elementary Diagram, Reactor Auxiliaries RCP "B" Seal Water Disch. Isolation Valve CV-3-303B, Rev. 2



5613-E-25, Sheet 98A, Unit 3, Elementary Diagram, Reactor Auxiliaries Charging System Control Valve HCV-3-121, Rev. 0

5613-E-28, Sheet 36B, Elementary Diagram, Electrical Auxiliaries Diesel Generator 3A Relaying & Metering, Rev. 2

5613-M-3030, Sheet 5, Unit 3, Piping and Instrumentation Diagram, Component Cooling Water System, Rev. 16

5613-M-3047, Sheet 1, Unit 3, Piping and Instrumentation Diagram, Chemical and Volume Control System Charging and Letdown, Rev. 17

5613-M-3047, Sheet 2, Unit 3 Piping and Instrumentation Diagram, Chemical and Volume Control System Charging and Letdown, Rev. 38

5613-M-3047, Sheet 3, Unit 3, Piping and Instrumentation Diagram, Chemical and Volume Control System Charging and Letdown, Rev. 20

5614-E-25, Sheet 2B, Elementary Diagram, Reactor Auxiliaries Component Cooling Water PP 4B Breaker 4AB13, Rev.5

5614-E-28, Sheet 8A, Elementary Diagram, Electrical Auxiliaries Diesel Generator Breaker 4AA20, Rev. 5

5614-E-25, Sheet 8B, Unit 4, Elementary Diagram, Reactor Auxiliaries Pressurizer Heater Backup Group 4B Breaker 40408, Rev. 3

5614-E-28, Sheet 14A, Elementary Diagram, Electrical Auxiliaries 4160V Switchgear Bus 4A Lock Out Relay, Rev. 2

5614-E-25, Sheet 32G, Unit 4, Elementary Diagram, Reactor Auxiliaries RCP Thermal Barrier CCW Supply Isolation Valve MOV-4-716A, Rev. 5

5614-E-25, Sheet 32H, Unit 4, Elementary Diagram, Reactor Auxiliaries RCP Thermal Barrier CCW Supply Isolation Valve MOV-4-716B, Rev. 4

5614-E-25, Sheet 33A, Unit 4, Elementary Diagram, Reactor Auxiliaries RCP Thermal Barrier CCW Isolation MOV, MOV-4-626, Rev. 4

5614-E-28, Sheet 1B, Elementary Diagram, Electrical Auxiliaries Auxiliary Transformer Breaker 4AB02. Rev. 8

5614-J-806, Sheet 2B, Instrument Loop Diagram Pressurizer Pressure and Level, Rev. 0

#### Calculations, Analyses, and Evaluations

5610-M-722, Appendix R Safe Shutdown Analysis (pages relevant to the selected fire areas)

5610-M-723, Appendix R Essential Equipment List (pages relevant to the systems reviewed)

5610-E-2000, Appendix R Essential Cable List (pages relevant to the components reviewed)

5177-265-EG-22, Breaker Fuse Coordination (pages relevant to inspection scope)

JPN-PTN-SEEP-93-011, Safety Evaluation for Potential for Loss of Remote Shutdown Capability During a Control Room Fire, Rev. 0

JPN-PTN-SECS-93-042, Turkey Point Units 3 & 4 Evaluation for the Installation of Rain Gutters in the Units 3B & 4B Switchgear Rooms, Rev. 2

PTN-BFSC-00-2002, Adequacy of Start-up Transformer Foundation and Basin for Transformer Replacement, Rev. 0

PTN-C-SJ204-04, Required Thickness of Fire Walls, Rev. 0

PTN-FPE-89-003, Evaluation of Conduit Penetrations on the Door Frame for Door D063-2, Rev. 09/29/89

PTN-FPER-96-024, Technical Evaluation to Compare a Sample Population of Penetration Fire Seals Against Tested Configurations, Rev. 0

ATTACHMENT

PTN-FPER-99-005, Penetration Fire Seal Evaluations, Rev. 7  
 PTN-M12-202-02, Manual Actions Required to Mitigate the Consequences of Fire Damper Closure Due to Appendix R Postulated Fire, Rev. 2

#### Audits and Self-Assessments

Turkey Point Nuclear Plant Appendix R and Fire Protection Program 2003 Self-Assessment, dated 12/31/2003  
 Assessment-03-12, Fire Protection Self-Assessment, dated 11/21/03

#### Completed Surveillance Procedures and Test Records

0-SMM-016.6, Fire Door Inspection for Door No. D063-2, completed 03-13-02  
 0-SMM-016.6, Fire Door Inspection for Door Nos. D067-2 and D067-3, completed 04-23-03  
 0-SME-104.1, Self Contained, Battery Powered, Emergency Lighting Quarterly Performance Test, dated 09/16/03

#### Technical Manuals/Vendor Information

Brooks Equipment Co., Inc., E15NST 1-1/2" Adjustable Fog/Shutoff Only Poly-Carbonate Nozzle, dated 01/29/04  
 MRN Metron, Manual for Engine Driven Fire Pump Controllers, Model FD2-AFHJKPSV, dated 02/02/87  
 PTN Technical Specification for Fire Rated Hollow Metal Doors, Frames and Hardware, Rev. 1  
 PTN 5177-230-M-616, Technical Specification for Fire Dampers, Rev. 1  
 Pyrotronics Catalog Number 6119, Technical Specification for Model DI-3 Series Ionization Smoke Detector, dated 04/87

#### Applicable Codes and Standards

NFPA 14, Standard for the Installation of Standpipe and Hose Systems, 1974 Edition  
 NFPA 20, Standard for the Installation of Centrifugal Fire Pumps, 1982 Edition  
 NFPA 80, Standard on Fire Doors and Windows, 1975 Edition  
 NUREG-1552, Supplement 1, Fire Barrier Penetration Seals in Nuclear Power Plants, dated 01/99  
 OSHA Standard 29 CFR 1910, Occupational Safety and Health Standards  
 Underwriters Laboratory, Fire Resistance Directory, dated 01/98  
 Underwriters Laboratory Standard 555, Standard for Fire Dampers and Ceiling Dampers, dated 05/14/79

#### Other Documents

Exercise Guide Number 760210500 SPS-105, IC-1 Control Room Evacuation Simulator Scenario, Rev. 2/11/02  
 Exercise Guide Number 760207701 SPS-07701, IC-7 S/G Tube Leak / NIS Malfunction / 3B 4KV Bus Fire Simulator Scenario, Rev. 02/23/99

Exercise Guise Number 760007502 SPS-75.2, IC #20 Plant Startup / 3A EDG Failure / Loss of All AC Simulator Scenario, Rev. 10/1/97

Fire Protection Inspection Reports for 2003

Job Performance Measure 1200012300, Respond To Control Room Evacuation Condition - Unit 4 RCO, Rev. 07/24/03

Job Performance Measure 1200013300, Respond To Control Room Evacuation Condition - Third Licensed RCO, Rev. 03/05/03

Job Performance Measure 1200013301, Respond To Control Room Evacuation Condition - Third Licensed RCO, Rev. 12/01/03

Job Performance Measure 14200014300, Respond To Control Room Evacuation As Non-Fire Brigade NPO, Rev. 12/12/01

Job Performance Measure 14200014301, Respond To Control Room Evacuation As Non-Fire Brigade NPO, Rev. 03/17/03

Job Performance Measure 14200014302, Respond To Control Room Evacuation As Non-Fire Brigade NPO, Rev. 03/17/03

Job Performance Measure 2200004300, Respond To Control Room Evacuation Condition - NPS, Rev. 03/16/03

Job Performance Measure 2200019300, Respond To Control Room Evacuation Condition - ANPS, Rev. 3/17/03

Job Performance Measure 24200016301, Respond To Control Room Evacuation As Inside SNPO, Rev. 12/19/02

Job Performance Measure 24200017300, Respond To Control Room Evacuation As Outside SNPO, Rev. 12/19/02

RAR ADD #0201006-O-23, Associate Nuclear Plant Operator Continuing Training Tasks/Training Materials Matrix

RAR ADD #0201006-O-25, Nuclear Plant Operator Continuing Training Tasks/Training Materials Matrix

RAR ADD #0201006-O-28, Senior Nuclear Plant Operator Continuing Training Tasks/Training Materials Matrix

RAR ADD #0207053-O-02, Lesson Plan No. 6902261, 0-ONOP-016.10, Respond To A Plant Fire, Rev. 5/23/03

RAR ADD #0207053-O-02, Lesson Package No. 6900261, 0-ONOP-016.10, Response To Plant Fire, Rev. 05/23/03

RAR ADD #0207098-O-02, Lesson Package No. 6900252, 0-ONOP-0105, Control Room Evacuation, Rev. 05/06/03

RAR ADD #0301008-O-11, Lesson Package No. 6900320, 0-ADM-22, EOP Introduction And EOP/ONOP Users Guide, Rev. 12/17/03

RAR ADD #9405136-O-02, Lesson Package No. 6900019, 0-ADM-016.3, Fire Protection Impairments (FPI), Rev. 01/18/95

RAR ADD #9801001-O-48, Lesson Package No. 760007702, Main Transformer Oil Leak/Plant Shutdown Zion), Rev. 03/03/99

RAR ADD #9806008-O-03, System Description SD-153 (Sys. 016, 017, 091), Fire Protection, Alternate Shutdown and Safe Shutdown Systems (App. R), Rev. 05/24/99

RAR ADD #9812152-O-01, Lesson Package No. 760007700, Main Transformer Oil/NIS Malfunction, Rev. 02/19/99

SAP-200, Attachment 1, FEP Manning Sheet, Rev. 7

Turkey Point Combustible Storage Locker List, dated 01/27/04

Turkey Point Transient Combustible Permits issued from January 2001, for Fire Zones 63, 67, and 106

License Basis Documents

UFSAR 9.6A, Fire Protection Program Report, Rev. 17

CRs Reviewed

Corrective action program plant issues (PIs) resulting from fire, smoke, sparks, arcing, and equipment overheating incidents for the period 2001-2003

Turkey Point Information Bulletin #03-26, Smoking Policy, dated 07/21/03

Fire Brigade Assignment Sheet for Currently Qualified Brigade Members, dated 02/11/04

Fire Brigade Qualifications List, dated 02/10/04

U. S. Consumer Product Safety Commission, Invensys Building Systems Announce Recall of Siebe Actuators in Building Fire/Smoke Dampers, dated 10/02/02

NRC Information Notice 2003-08, Potential Flooding through Unsealed Concrete Floor Cracks, dated 06/25/03

Southwest Research Institute, Three-hour Fire Test of Four Penetrations Sealed With Silicone Elastomer, Hydrosil, Boots and Fiber, and Adhesive and Caps, dated 09/87

Tech-Sil Inc., Fire and Hose Stream Test # TS-TP-0018, of a Silicone Elastomer Seal in an Electrical Penetration, dated 08/21/79

Tech-Sil Inc., Test Report #TS-TP-0084, Fire and Hose Stream Test for 6" of TS-MS-0045-B Silicone Elastomer, dated 04/14/82

Summary of TPN Penetration Seal Inspections, dated 01/08/04

Fire Protection Impairment No. 9459, dated 02/02/04

CR 01-0011, Fire in Dryer

CR 01-0230, Fire Area CC Not Bounded by Three Hour Fire Barrier

CR 01-0293, Fire Barriers Discrepancy

CR 01-0300, Discrepancies Between Safe Shutdown Analysis and Off-Normal Operating Procedures

CR 01-0310, Foam Installation on Chilled Water Lines Not Evaluated as Combustible

CR 01-0318, Compensatory Measures For Safe Shutdown Analysis Components

CR 01-0319, Charging Pump Room Doors Are Not Three Hour Fire Barriers

CR 01-0320, Smoke Detectors in 3B Switchgear Room Not Installed Per NFPA 72E-1982

CR 01-0326, Lack Of Halon System Testing or Calculations

CR 01-0333, Underground Cable Penetration Seals Between Fire Areas Were Not Inspected

CR 01-1168, Overheated Wires

CR 02-2452, Fire Alarm During EDG Run

CR 02-1268-1&2, Feasibility of performing manual actions with respect to normalized criteria

CR 03-1260, Overheated Compressor Oil

CR 03-1330, 03-1330-1, Review Safe Shutdown Assumptions to Determine If Station Blackout Assumptions for RCP Seal Cooling Apply

CR 03-2310, Evaluate the Type of Lighting and Power Sources Needed to Provide Emergency Lighting for Fire Fighter Dress Out Areas

CR 03-3497, Weld Slag Ignited Rags

- CR 03-4126, Procedure enhancement recommended to assign groups of fire zone manual actions to designated operators
- CR 04-0033, Credited valves MOV-3/4-860A&B and 861A&B in path from containment sump to RHR suction could be affected by fire
- CR 04-0124, Manual action required to trip RCP breakers when trip from main control room not available
- CR 04-0292, Operations practices not fully reflected in Pre-fire Plans procedural format
- CR 04-0580, Evaluate an alternate method to define time-lines that could enhance manual action sequences and interactions

#### CRs and Work Orders Generated During this Inspection

- CR 04-0369, Not All NFPA Standard Codes in the PTN Licensing Basis Are Listed In UFSAR Table 9.6A-12.
- CR 04-0385, No Provisions for DDFP Start Testing on Loss of Power in Either the Surveillance or Operability Procedures.
- CR 04-0476, Area Fire Detection Is Not Installed in the Areas of the Control Room HVAC (Fire Zones 97 and 106R).
- CR 04-0477, Curbing for the Hydrogen Seal Oil Units Appears Insufficient to Contain the Full 846 Gallon Inventory Described in UFSAR Appendix 9.6A
- CR 04-0610, Review of 0-ONOP-016.10, Pre-Fire Plan Guidelines and Safe Shutdown Manual Actions, Discovered That Steps to Prevent Spurious Actuation of MOV-626 (CCW From Seal Cooling) Were Missing From Fire Zone 67 and 70. OTSC 04-0036 Generated.
- CR 04-0683, Inconsistency Identified in Manual Actions Prescribed in the Safe Shutdown Analysis and the Operations Safe Shutdown Manual Actions for Fire Zone 63 in 0-ONOP-16.10
- CR 04-0686, Ceiling Level Fire Detectors in the 4B Switchgear Room (Fire Zone 67) Do Not Meet the Spacing Guidelines per NRC MC 0609F, Attachment 2 and Is Not Consistent With UFSAR Section 3.5.1.
- CR 04-0687, Equipment Procedurally Required to Achieve Cold Shutdown (GOP-305 and EOP-ES-0.2) Was Discovered to be Affected By the Fire and Would Require Manual Operator Action to Re-position When Aligning RHR.
- CR 04-0688, OTSCs 04-0038 [0-ONOP-016.10] and 04-0039 [0-ONOP-105] Have Been Issued to Advance the Current Manual Actions to Establish RCP Seal Injection Within 13 Minutes Instead of Current 20 Minutes.
- CR 04-0700, Control Room Evacuation procedure 0-ONOP-105 Does Not Direct Plant Operators to Take Security Vital Access Keys Prior to Evacuating.
- CR 04-0705, 0-ONOP-016.10, Pre-Fire Plan Guidelines and Safe Shutdown Manual Actions, Attachment 1, Does Not Have the Timed Actions Broken Down Into Designated Manual Actions.

**LIST OF ACRONYMS**

ADAMS	Agency-Wide Documents Access and Management System
ASP	alternate shutdown panel
CAP	corrective action program
CCW	component cooling water
CFR	Code of Federal Regulations
CR	condition report
DC	direct current
ELU	emergency lighting unit
FA	fire area
FHA	Fire Hazards Analysis
ft	foot
FPP	Fire Protection Program
FPPR	Fire Protection Program Report
FZ	fire zone
GOP	General Operating Procedure
HVAC	heating, ventilation, and air conditioning
LCV	level control valve
MCR	main control room
MOV	motor operated valve
NCV	non-cited violation
NFPA	National Fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
ONOP	Off-Normal Operating Procedure
OSHA	Occupational Safety and Health Administration
PARS	Publicly Available Records Systems
POC	point of combustion
RCP	reactor coolant pump
RCS	reactor coolant system
RWST	refueling water storage tank
SDP	Significance Determination Process
SER	safety evaluation report
SSAR	Safe Shutdown Analysis Report
SSD	safe shutdown
UFSAR	Updated Final Safety Analysis Report
UL	Underwriter's Laboratory
URI	unresolved item
V	volt