UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

November 26, 2018

Mr. David B. Hamilton
Site Vice President
FirstEnergy Nuclear Operating Company
Perry Nuclear Power Plant
Reg Affairs–A210
10 Center Road, P.O. Box 97
Perry, OH 44081–0097

SUBJECT: PERRY NUCLEAR POWER PLANT—NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000440/2018011

Dear Mr. Hamilton:

On October 18, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed a Triennial Fire Protection Inspection at your Perry Nuclear Power Plant. The NRC inspectors discussed the results of this inspection with Mr. D. Reeves and other members of your staff. The results of this inspection are documented in the enclosed report.

Based on the results of this inspection, the NRC has identified three issues that were evaluated under the risk significance determination process as having very-low safety significance (green). The NRC has also determined that three violations were associated with these issues. Because the licensee initiated condition reports to address these issues, these violations are being treated as Non-Cited Violations (NCVs), consistent with Section 2.3.2 of the Enforcement Policy. These NCVs are described in the subject inspection report.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555–0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement; and the NRC Resident Inspector at the Perry Nuclear Power Plant.

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555–0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at Perry Nuclear Power Plant.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at http://www.nrc.gov/reading-rm/adams.html and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations*, Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Robert C. Daley, Chief
Engineering Branch 3
Division of Reactor Safety

Docket No. 50–440
License No. NPF–58

Enclosure:
Inspection Report 05000440/2018011

cc: Distribution via LISTSERV®

Letter to David B. Hamilton from Robert C. Daley dated November 26, 2018.

SUBJECT: PERRY NUCLEAR POWER PLANT—NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000440/2018011

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50–440
License No:	NPF–58
Report No:	05000440/2018011
Enterprise Identifier:	I–2018–011–0047
Licensee:	First Energy Nuclear Operating Company (FENOC)
Facility:	Perry Nuclear Power Plant
Location:	North Perry, Ohio
Dates:	September 17, 2018, through October 18, 2018
Inspectors:	A. Dahbur, Senior Reactor Inspector (Lead) I. Hafeez, Reactor Inspector A. Shaikh, Senior Reactor Inspector
Approved by:	Robert C. Daley, Chief Engineering Branch 3 Division of Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee's performance by conducting a Triennial Fire Protection at Perry Nuclear Power Plant in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to https://www.nrc.gov/reactors/operating/oversight.html for more information. The NRC and self-revealed findings, violations, and additional items are summarized in the table below. There were no Licensee-identified violations.

List of Findings and Violations

Failure to have Adequate Pre-Fire Plans			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green NCV 05000331/2018011–01 Opened and Closed	None	71111.05T
The inspectors identified a finding of very-low safety significance (Green), and associated Non-Cited Violation (NCV) of License Condition 2.C(6), "Fire Protection," for the licensee's failure to implement and maintain all provision of the approved Fire Protection Program to ensure that a fire in any zone would not have the potential to cause a secondary fire/damage to safe shutdown components in different zone. Specifically, the inspectors identified a potential existed for a fire induced fault to cause a secondary fire in a different fire zones/areas due to unfused circuit associated with the Diesel Generator Building Ventilation Fan 1M43C0001A. This condition was outside the boundaries of the safe shutdown analysis.			

Failure to Include Operator Action in the Plant Operating Procedure			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000331/2018011–02 Opened and Closed	[H.2] - CCA Field Presence	71111.05T
The inspectors identified a finding of very-low safety significance and associated violation of License Condition 2.C.6, "Fire Protection," for failure to meet the requirements of its Fire Protection Program. Specifically, the licensee failed to implement a fire watch in accordance with the Fire Protection Program when transient combustibles were located in the Emergency Service Water pump house room that is classified as a combustible control zone.			

Failure to have Adequate Pre-Fire Plans			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000331/2018011–01 Opened and Closed	None	71111.05T
The inspectors identified a finding of very-low safety significance (Green), and an associated NCV of License Condition 2.C.6, “Fire Protection,” for the licensee’s failure to install smoke detection system in accordance with National Fire Protection Association 72E “Automatic Fire Detectors.” Specifically, the licensee installed the smoke detectors in the Emergency Service Water pump-house with one-half at ceiling level and one-half at 18 inches from the ceiling instead of 36 inches as required per National Fire Protection Association 72E-1974.			

Additional Tracking Items

None

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently, approved IPs with their attached revision histories are located on the public website at http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.05T—Fire Protection (Triennial)

The inspectors evaluated the following from September 17, 2018, to October 18, 2018:

Fire Protection Inspection Requirements (4 Samples)

The inspectors evaluated the Fire Protection Program implementation in the following selected areas:

(1) Fire Zone 1CC-3c, Division 1 Switchgear Room;
(2) Fire Zone 1CC-5a, Control Room;
(3) Fire Zone CC1, Control Complex Elevation 574; and
(4) Fire Zone ESW1, Essential Service Water (ESW) Pump House.

B.5.b Inspection Activities (2 Samples)

The inspectors evaluated feasibility of the following B.5.b Mitigating Strategies:

(1) NEI 06-12, Section 3.4.5, Make up to Condensate Storage Tank; and
(2) NEI 06-12, Section 3.4.9, Inject Water Into Drywell.

INSPECTION RESULTS

71111.05T—Fire Protection (Triennial)

Failure to have Adequate Pre-Fire Plans			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green NCV 05000440/2018011–01 Opened and Closed	None	71111.05T
Introduction: The inspectors identified a finding of very-low safety significance (Green), and associated NCV of License Condition 2.C(6), "Fire Protection," for the licensee's failure to implement and maintain all provision of the approved Fire Protection Program to ensure that a fire in any zone would not have the potential to cause a secondary fire/damage to safe shutdown components in a different zone. Specifically, the inspectors identified a potential for			

a fire induced fault to cause a secondary fire in different fire zones/areas due to an unfused circuit associated with the Diesel Generator Building Ventilation fan 1M43C0001A.

This condition was outside the boundaries of the safe shutdown analysis.

Description: While reviewing the Schematic Drawing 208-0135-00003, Revision AA, for Diesel Generator Building Ventilation Fan 1M43C0001A, the inspectors identified an unfused circuit fed directly from 250 VA control power transformer associated with the control circuit for the fan. This circuit was contained in Cable 1M43C88A and was routed from Motor Control Center EF1A08-PP located in Division 1 Switchgear Room (Fire Zone 1CC-3C), through the Elevator vestibule (1CC-3e), through the Diesel Generator Hallway (DG-1d), and finally terminated in the Division 1 Diesel Generator Room (1DG-1c).

Further review revealed that the change to the originally installed fan circuit that added this cable was performed under Engineering Change Notice 27102-86-1502/G in June of 1985 specifically for Appendix R compliance. It was determined that in order to be able to run the fan locally from the EDG Room, in the event of a fire in the control room area that could result in fire damage to a portion of the fan circuit and the control power fuse blown, the 1985 modification would still allow the capability to locally start the fan by bypassing the blown control fuse.

In response to the inspectors question related to this unfused circuit, the licensee determined that without overcurrent protection for this circuit, the potential existed for a fire event that affects this circuit to cause a short circuit without protection. This event would cause excessive current through the circuit beyond the capacity rating of the conductors or the control power transformer. This could lead to a secondary fire in another plant area where this circuit was routed, thereby challenging the ability to achieve and maintain safe shutdown.

This condition was not bounded by existing design and licensing documents. The station's fire protection safe shutdown analysis, documented in Calculation SSC-001, was dependent on a fire being limited to a single area. Once a secondary fire was possible, it represented an unanalyzed condition. The licensee reported this condition to the U.S. Nuclear Regulatory Commission (NRC) in accordance with Title 10 of the *Code of Federal Regulations*, Part 50.72, per non-emergency Event Notification EN-53644 on October 4, 2018.

Corrective Action(s): As immediate corrective actions, the licensee established interim compensatory measures (i.e., fire watches) and recommended an action to fuse this circuit.

Corrective Action References: Condition Report (CR) 2018-08718 and EN-53644

Performance Assessment:

Performance Deficiency: The inspectors determined that the licensee's failure to ensure that a single fire in any zone would not result in the potential to cause a secondary fire/damage to safe shutdown component in a different zone was contrary to License Condition 2.C(6) and was a performance deficiency. Specifically, the licensee failed to ensure that a fire induced fault on the unfused circuit associated with EDG Building Ventilation Fan 1M43C0001A would not result in a secondary fire in other zones, which was not bounded by the existed design and licensing documents.

Screening: The inspectors determined the performance deficiency was more-than-minor because it adversely affected the Initiating Events cornerstone attribute of Protection Against

External Factors (Fire) and affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the unfused circuit associated with 1M43C0001A increased the potential of a secondary fire in other zones. This condition was outside the boundaries of the safe shutdown analysis. Additionally, a secondary fire event could complicate firefighting activities by the fire brigade and could either increase the likelihood of a larger fire event or the severity of the fire.

Significance: In accordance with IMC 0609, "Significance Determination Process (SDP)," Attachment 0609.04, "Initial Characterization of Findings," Table 2, the inspectors determined the finding affected the Initiating Events cornerstone. The finding degraded fire protection defense-in-depth strategies and the inspectors determined, using Table 3, that it could be evaluated using Appendix F, "Fire Protection SDP." The inspectors assigned this finding to the "Fire Prevention," category in Step 1.4 of IMC 0609, Appendix F. The inspectors then answered NO to Question 1.4.6-A because the finding did not result in a more significant fire than previously analyzed such that the credited safe shutdown strategy could be adversely impacted, and determined that the issue screened as having very-low safety significance (Green). Although, a secondary fire could complicate firefighting activities and could either increase the likelihood of a larger fire event or the severity of the fire, the probability of a fire that could impact both safe shutdown methods was very-low. The inspectors walk down the affected Fire Zones (1CC-3e, 1CC-3c, DG-1d and 1DG-1c) and reasonably concluded that the potential of a fire that could impact both safe shutdown methods was low.

Cross-Cutting Aspect: The finding did not have a cross-cutting aspect because it was considered not to be indicative of current licensee performance (i.e., deficiency existed for more than 3 years).

Enforcement:

Violation: License Condition 2.C(6) requires the licensee to implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report (FSAR), as amended, and as approved through Safety Evaluation Report (NUREG-0887) dated May 1982, and Supplements Numbers 1 through 10. The FSAR Section 9A.2.3.6, "Review of Redundant Shutdown Systems," stated, in part, that a Safe Shutdown Analysis/Evaluation was performed to ensure that redundant shutdown systems and all circuits, equipment and instrumentation that are associated with shutdown system are separated from each other, so that both are not subject to damage from a single fire.

In addition, Section 3.4.03.04 of SSC-001, "Safe Shutdown Capability Report," Revision 5, stated in part, that Fire Zone 1CC-3e, contains components and circuits for Method A and Method B systems. For this area, safe shutdown could be achieved utilizing Method A systems and equipment.

Contrary to the above, as of October 18, 2018, the licensee failed to ensure that redundant shutdown systems including circuits were separated from each other, so that both were not subject to damage from a single fire. Specifically, the licensee failed to ensure a fire induced fault to unfused circuit associated with DG Building Ventilation Fan 1M43C0001A would not result in a secondary fire in a different zones. This condition was not bounded by existed design and licensing documents. A fire in any of these fire zones 1CC-3c, DG-1d and 1DG-1c could cause a secondary fire in zone 1CC-3e that impact the credited safe shutdown components for a fire in area 1CC-3e.

Disposition: This violation is being treated as a NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Include Operator Action in the Plant Operating Procedure			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000440/2018011–02 Opened and Closed	[H.2] - CCA Field Presence	71111.05T

Introduction: The inspectors identified a finding of very-low safety significance and associated violation of License Condition 2.C(6), "Fire Protection," for failure to meet the requirements of its Fire Protection Program. Specifically, the licensee failed to implement a fire watch in accordance with the fire protection program when transient combustibles were located in the ESW pump house room that is classified as a combustible control zone.

Description: During a field walk down of the ESW pump house room, the inspectors identified a significant quantity of temporary 480V power cables in the combustible control zone of the pump house (ESW-1a). In addition, a portable diving pump with oil was also found by the licensee in the combustible control zone. The inspectors questioned the impact to safe shutdown equipment in this area by staging a portable oil filled pump and routing these temporary power cables through a combustible control zone and requested a transient combustible control permit for these combustibles. The licensee determined that no transient combustible control permit was issued for these power cables and portable pump and therefore, no evaluation was performed on the impact of these combustibles in this combustible control zone. Subsequent to the NRC inspector's questions, the licensee performed an evaluation on the impact of these combustibles in the combustible control zone.

The temporary power cables were routed immediately adjacent to cable tray 1305, which contains safe shutdown Method B circuits. The circuits in cable tray 1305 include those circuits that support the ESW screen wash pump (B train), ESW pump house ventilation supply fan and related dampers (B train) and the ESW pump discharge isolation valve and related limit switch (B train). Although, these circuits are spatially separated from redundant equipment by at least 20 feet. A postulated fire involving the temporary power cables and a portable oil filled pump could damage the circuits in cable tray 1305, but could also potentially damage the corresponding redundant circuits (Method A).

Procedure PAP-1910, "Fire Protection Program," establishes the fire protection policy at Perry Nuclear Power Plant. The PAP-1910, Section 4.6.4, "Fire Watches," states, in part, that the specifics that control this process are described in sub-tier instruction FPI-A-C01, "Fire Protection Program Control Processes (Hot Work Permits, Transient Combustibles, Impairments, and Fire Watches)." The FPI-A-C01, Section 6.5, "Fire Watches," states, in part, that continuous fire watches are established when there is increased combustible loading in areas listed in Attachment 1 beyond the exempted limits specified in PAP-1910. Attachment 1 of FPI-A-C01 lists the ESW pump house room, area ESW-1a as a combustible control zone and PAP-1910 specifies the exempted limit of combustible material in a combustible control zone is 10 pounds. The licensee determined that approximately 60 pounds of temporary power cables were located in the ESW-1a combustible control zone and the portable diving pump was in excess of 10 pounds as well.

Corrective Action(s): The licensee entered the NRC inspectors' concern into its Corrective Action Program. As part of immediate corrective actions, the licensee removed and relocated

the temporary power cables and pump outside the combustible control zone of the ESW pump house room.

Corrective Action Reference: CR 2018-08305

Performance Assessment:

Performance Deficiency: Failure to implement a fire watch due to exceeding combustible loading limit in a combustible control zone.

Screening: The licensee's Failure to implement fire watches due to exceeding the combustible loading limit in a combustible control zone was a performance deficiency. The inspectors determined the performance deficiency was more-than-minor, and therefore, a finding, because it adversely affected the Protection Against External Factors attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage).

Specifically, the failure to implement a fire watch in the ESW pump house room, fire area ESW-1a, reduced the defense in depth in fire protection of the ESW pump house and could have resulted in a potential fire damaging equipment required for both safe shutdown methods.

Significance: The inspectors assessed the significance of the finding in accordance with IMC 0609, "SDP," Attachment 0609.04, "Initial Characterization of Findings," Table 2. The inspectors determined the finding affected the Mitigating Systems cornerstone. The finding degraded fire protection defense-in-depth strategies, and the inspectors determined, using Table 3, that it could be evaluated using Appendix F, "Fire Protection SDP." The inspectors screened the finding using IMC 0609, Appendix F, Attachment 1, "Part 1: Fire Protection SDP Phase 1 Worksheet," dated May 2, 2018. The inspectors determined that the finding degradation rating was low in accordance with the guidance in IMC 0609, Appendix F, Attachment 2. The inspectors answered "YES" to question 1.3.1 of IMC 0609, Appendix F, Attachment 1, "Based on the criteria in Attachment 2, does the finding have a low degradation?" Therefore, the inspectors determined that the finding screened as having very-low safety significance (Green).

Cross-Cutting: The finding had a cross-cutting aspect of Field Presence in the Area of Human Performance for the licensee's failure to provide supervisory oversight of work activities including contractors and supplemental personnel. Specifically, the licensee management and supervisors failed to appropriately recognize the requirements in Procedure FPI-A-C01, which establishes fire watches in combustible control zones when exempted combustible limits were exceeded. [H.2]

Enforcement:

Violation: License Condition 2.C(6) requires the licensee to implement and maintain all provisions of the approved Fire Protection Program as described in the FSAR, as amended, and as approved through Safety Evaluation Report (NUREG-0887) dated May 1982, and Supplements Numbers 1 through 10. The FSAR, Appendix 9A, "Fire Protection Evaluation Report," Position B.1, states, in part, that First Energy Nuclear Operating Company has implemented Plant Administrative Procedure PAP-1910, Fire Protection Program as the controlling document.

Procedure PAP-1910, Section 4.6.4, "Fire Watches" states, in part, that the specifics that control this process are described in sub-tier instructions FPI-A-C01, "Fire Protection Program

Control Processes (Hot Work Permits, Transient Combustibles, Impairments, and Fire Watches)." The FPI-A-C01, Section 6.5, "Fire Watches," states, in part, that continuous fire watches are established when there is increased combustible loading in areas listed in Attachment 1 beyond the exempted limits specified in PAP-1910. Attachment 1 of FPI-A-C01 lists the ESW pump house room, area ESW-1a as a combustible control zone and PAP-1910 specifies the exempted limit of combustible material in a combustible control zone is 10 pounds.

Contrary to the above, since September 2018, the licensee failed to maintain its Fire Protection Program because it failed to implement fire watches in the ESW pump house room area ESW-1a when greater than 10 pounds (approximately 60 pounds) of combustible material was temporary located in this area.

Disposition: This violation is being treated as a NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Include Operator Action in the Plant Operating Procedure			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000440/2018011–03 Opened and Closed	None	71111.05T

Introduction: The inspectors identified a finding of very-low safety significance (Green), and an associated NCV of License Condition 2.C.6, "Fire Protection," for the licensee's failure to install smoke detection system in accordance with National Fire Protection Association (NFPA) 72E-1974. Specifically, the licensee installed the smoke detectors in the ESW pump-house with one-half at ceiling level and one-half at 18 inches from the ceiling instead of 36 inches as required per NFPA 72E-1974.

Description: During a walkdown of the ESW pump house area, the inspectors observed smoke detectors installed on the high ceiling (approximately 62 feet) of the pump house. The ESW pump house contains fire area ESW-1a which contains safe shutdown Method A and B equipment. The inspectors questioned the position of the detectors relative to the ceiling height. Specifically, the inspectors noted that the detectors were installed in an alternating pattern where half the ESW pump house room detectors were mounted on the I-beams running across the ceiling of the pump house and the other half of the detectors were mounted flush to the ceiling. The depth of the I-beam was 18 inches and the I-beam was flush with the ceiling such that the detectors were mounted 18 inches from the ceiling surface.

A review of the licensee's code of record of NFPA 72E-1974, "Automatic Fire Detectors," Section 4-4, "High Ceilings Location and Spacing," revealed that for proper protection for building with high ceilings, detectors shall be installed alternately at two levels; one-half at ceiling level, and the other half at least 3 feet below the ceiling. This is required to accommodate for stratification of smoke due to the smoke losing its thermal lift from the fire and the generally higher temperature of the air near the ceiling.

In addition, Calculation P54-010, Revision 0, evaluated the smoke detection to be used in the ESW Pump house. This calculation states that ionization detectors were installed at ceiling level and 3 feet below the ceiling. Specifically, the calculation referenced the applicable portion of the NFPA 72E standard. Also, Drawing 221-0071-00000 showed half the detectors were mounted at elevation 643'-1 inch where the ceiling level is at 646'-1 inch per

Drawing 526-0301-00000 Revision D. Additionally, in Supplemental Safety Evaluation Report 3, the NRC staff granted the licensee a requested deviation from meeting the Branch Technical Position 9.5-1 requiring automatic suppression system in fire area ESW-1a. One of the basis for the NRC granted deviation was that the license stated that fire area ESW-1a had early warning detection.

Corrective Action(s): The inspectors were concerned that failure to install detectors in accordance with the applicable NFPA 72E code could result in an adverse impact in the ability of the detectors to provide an early warning in the event of a fire. Subsequent to the NRC inspector's questions, the licensee acknowledge the inspectors' concerns and entered it into its Corrective Action Program and as immediate corrective actions, the licensee declared a fire detection impairment for the ESW pump house room and implemented an hourly fire watch in accordance with the site fire protection program.

Corrective Action Reference: Condition Report (CR) 2018-08725

Performance Assessment:

Performance Deficiency: The inspectors determined that the licensee's failure to install smoke detectors in the ESW pump-house area 36 inches from the ceiling was contrary to NFPA 72E-1974, Section 4-4 and was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more-than-minor because it affected the Mitigating Systems cornerstone attribute of Protection Against External Factors (Fire), and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the failure to install the detection system in accordance with the code of record degraded the defense-in-depth element of the Fire Protection Program for this area. This could affect the timeliness of response to a fire in the area due to delayed detection of smoke, allowing the fire to grow and delaying the firefighting activities of the fire-brigade. In addition, this condition did not ensure early-warning fire detection, which was one of the bases for approval of a deviation for the lack of a suppression system.

Significance: In accordance with IMC 0609, "SDP," Attachment 0609.04, "Initial Characterization of Findings," Table 2 the inspectors determined that the finding affected the Mitigating Systems cornerstone. The finding degraded fire protection defense-in-depth strategies, and the inspectors determined, using Table 3, that it could be evaluated using Appendix F, "Fire Protection SDP." The inspectors screened the finding using IMC 0609, Appendix F, Attachment 1, "Part 1: Fire Protection SDP Phase 1 Worksheet," dated May 2, 2018. The inspectors assigned a Low degradation rating in accordance with Attachment 2 of Appendix F, because although the smoke detection system installed in ESW did not fully conform to NFPA 72E-1974, all installed detectors in the area were functional. The inspectors determined that the finding screened as having very-low safety significance (Green) per answering "YES" to Question 1.3.1 A, based on the finding had a low degradation rating.

Cross-Cutting Aspect: The finding did not have a cross-cutting aspects because it was considered not to be indicative of current licensee performance (i.e., deficiency existed for more than 3 years).

Enforcement:

Violation: License Condition 2.C(6) requires the licensee to implement and maintain all provisions of the approved Fire Protection Program as described in the FSAR, as amended, and as approved through Safety Evaluation Report (NUREG-0887) dated May 1982, and Supplements Numbers 1 through 10. The FSAR Section 9A.7, states, in part, that fire detectors are located and spaced in accordance with NFPA 72E. The NFPA 72E, Section 4-4, "High Ceilings Location and Spacing," states that for proper protection for building with high ceilings, detectors shall be installed alternately at two levels; one-half at ceiling level, and the other half at least 3 feet below the ceiling.

Contrary to the above, since original construction, the licensee failed to install smoke detection system in ESW pump house accordance with the requirements of NFPA 72E-1974.

Specifically, the detectors in the ESW pump house were installed with one-half at ceiling level and one-half at 18 inches from the ceiling instead of at least 3 feet from the ceiling as required per NFPA 72E-1974, Section 4-4.

Disposition: This violation is being treated as a NCV, consistent with Section 2.3.2 of the Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

The inspectors confirmed that proprietary information was controlled to protect from public disclosure. No proprietary information was documented in this report.

- On October 18, 2018, the inspectors presented the Triennial Fire Protection inspection results to Mr. D. Reeves, and other members of the licensee staff.

DOCUMENTS REVIEWED

Condition Reports – Issued During Inspection

- CR 2018-08191; Combustibles Found in ESW Pumphouse Combustible Control Zone; 09/17/2018
- CR 2018-08305; Unevaluated Transient Combustibles in Combustible Control Zone (Fire Zone ESW-1a); 09/20/2018
- CR 2018-08310; B.5.b Building Exhaust Fan Inappropriate Status Labeling; 09/20/2018
- CR 2018-08648; 2018 Discrepancy Between Calculation P54-024, Rev.6 and As-Found Field Conditions; 10/02/2018
- CR 2018-08649; CC-574 Scaffolding Obstructing Overhead Sprinklers with No Active Fire Impairment; 10/02/2018
- CR 2018-08258; Issues Identified During B.5.b Walkdown of Emergency Management Overview, OAI-1901; 09/19/2018
- CR 2018-08725; Smoke Detection in the Emergency Service Water Pumphouse Not Installed in Accordance with Design Documents and NFPA Code; 10/04/2018
- CR 2018-08718; Vulnerability to Cause Secondary Fire due to Unfused M43 Circuit Caused by Fire Induced Short; 10/04/2018
- CR 2018-09112; Potential Shortfall in IOI-0011; Shutdown from Outside Control Room; 10/17/2018
- CR 2018-09093; Reportability of 20101-76215; 10/17/2018

Condition Reports – Reviewed During Inspection

CR 2012-04734; Potential Spray Nozzle Coverage Issue in 638' Penetration Room; 03/28/2012
CR 2012-04714; Detection Coverage in Unit 1, Division 2 Cable Spreading Area; 03/28/2012
CR 2017-12488; NRC Question-Effects of internal flooding in the Control Complex 620 elevation; 12/28/2017
CR 2010-76215; Control Room Fire Induced MSO Potential Vulnerability; 04/30/2010
CR 2012-14336; Calculation P54-010 references the incorrect year of NFPA 72E, 09/18/2012
CR G202-2010-76215; Control Room Fire Induced MSO potential Vulnerability; 04/30/2010

Procedures

- PTI-P54-P0003; Fire Main Flow Test; Revision 7
- ONI-SPI-A-8; LPCS Fire Water; Revision 4
- ONI-SPI-D-9; Makeup Water Sources; Revision 1
- FPI-A-A02; Periodic Fire Inspections; Revision 6
- PYBP-POS-0029; Time Critical Operator Action Validation; Revision 3
- IOI-0011; Shutdown from Outside Control Room; Revision 37
- ONI-P54; Fire; Revision 23

Drawings

- 023-0034-00000; Fire Protection Evaluation – Emergency Service Water Pumphouse Plans and Sections; Revision H
- 015-0002-00000; Final Plant Layout, Revision F
- 549-D-526-301; Emergency Service Water Pump House Steel Framing- Roofing Plan- EL. 648'-0"; Revision D
- 302-0602-00000; Reactor Water Recirculation System; Revision U
- 302-0621-00000; Emergency Closed Cooling System; Revision TT
- 302-0791-00000; Emergency Service Water System; Revision AAA
- 206-0044-00000; One Line Diagram Non-Class 1E 480V Bus XF-1-A; Revision WW
- 220-0834-00000; Lighting Panel R71P136; Revision N
- 023-0034-00000; Fire Protection Evaluation - Emergency Service Water Pump house Plans and Sections; Revision H

Calculations and Evaluations

- P54-213; Fire Protection Evaluation to Abandon the Drywell Supplemental Heat Detection (Zone 8 and 9) in the Unit 1 Drywell (Fire Zone 1RB-1c); 03/14/2018
- P54-145; Unit 1, Division 1 Cable Spreading Areas, Vertical Cable Chase and Tunnel Fire Suppression Hydraulic Calculation; 08/28/2012
- P54-123; Piping Configuration Input for the Hydraulic Model of the Water Supply Distribution System for Fire Suppression Systems; 04/29/1997
- SSC-001; Appendix R Evaluation: Safe Shutdown Capabilities Report, Revision 5

Work Orders

- 200677254; 24 Month M21 System Fire Damper Visual Inspection; 04/10/2018
- 200667900; 24 Month M23 System Fire Damper Visual Inspection; 12/31/2017
- 200689434; 24 Month M24 System Fire Damper Visual Inspection; 07/06/2018
- 200680396; 24 Month M25 and M26 System Fire Damper Visual Inspection; 06/12/2018
- 200710691; 6 Month Magnetically Held Open Fire Door Operability Test; 05/07/2018

- 200477581; 3 Year Fire Main Flow Test; 09/22/2012
- 200532067; 3 Year Fire Main Flow Test; 05/06/2016
- 200655272; 18 Month Diesel Fire Pump Flow Data and Control Panel Functional Test; 06/22/2017