



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

January 25, 2018

Ernest J. Kapopoulos, Jr.  
Site Vice President  
H.B. Robinson Steam Electric Plant  
Duke Energy  
3581 West Entrance Road, RNPA01  
Hartsville, SC 29550

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT UNIT 2 – NRC TRIENNIAL  
FIRE PROTECTION INSPECTION REPORT 05000261/2017008

Dear Mr. Kapopoulos,

On December 14, 2017, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your H. B. Robinson Steam Electric Plant, Unit 2 and discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any finding or violation of more than minor significance.

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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

*/RA/*

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

Docket No. 50-261  
License Nos. DPR-23

Enclosure: Inspection Report 05000261/2017008  
w/Attachment: Supplemental Information

cc: Distribution via Listserv

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT UNIT 2 – NRC TRIENNIAL  
FIRE PROTECTION INSPECTION REPORT 05000261/2017008

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos: 50-261

License No: DPR-23

Report No: 05000261/2017008

Licensee: Duke Energy Progress, Inc.

Facility: H. B. Robinson Steam Electric Plant, Unit 2

Location: 3581 West Entrance Road  
Hartsville, SC 29550

Dates: November 27 – December 1, 2017 (Week 1)  
December 11-14, 2017 (Week 2)

Inspectors: P. Braaten, Reactor Inspector  
E. Coffman, Reactor Inspector (Week 1 Only)  
W. Monk, Reactor Inspector  
J. Montgomery, Senior Reactor Inspector (Lead Inspector)  
D. Strickland, Reactor Inspector

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

Enclosure

## **SUMMARY**

The NRC continued monitoring the licensee's performance by conducting a triennial fire protection inspection (TFPI) at H.B. Robinson Steam Electric Plant Unit 2 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.

No findings were identified.

## REPORT DETAILS

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R05 Fire Protection

This report documents the results of a Triennial Fire Protection Inspection (TFPI) at the H.B. Robinson Steam Electric Plant (RNP), Unit 2. The inspection was conducted in accordance with NRC Inspection Procedure (IP) 71111.05XT, "Fire Protection - NFPA 805 (Triennial)," issued January 31, 2013. The objective of the inspection was to evaluate the design, operational status, and material condition of the licensee's Fire Protection Program (FPP). An additional objective was to review site specific implementation of one mitigating strategy from Section B.5.b of NRC Order EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" (commonly referred to as B.5.b); as well as the storage, maintenance, and testing of B.5.b mitigating equipment. Section 71111.05-05 of the IP specifies a minimum sample size of two fire areas (FAs) and one B.5.b mitigating strategy for addressing large fires and explosions. The team selected three FAs based on available risk information as analyzed onsite by a senior reactor analyst from Region II, data obtained from in-plant walkdowns regarding potential ignition sources, location and characteristics of combustibles, and location of equipment needed to achieve and maintain the reactor in a safe and stable condition.

Other considerations for selecting the FAs were the relative complexity of the post-fire safe shutdown (SSD) procedures, information contained in FPP documents, and results of prior NRC TFPIs. In selecting the B.5.b mitigating strategy sample, the team reviewed licensee submittal letters, safety evaluation reports (SERs), licensee commitments, B.5.b implementing procedures, and previous NRC inspection reports. This inspection fulfilled the requirements of the procedure by selecting a sample of three FAs and one B.5.b mitigating strategy.

- FA A2 / Fire Zone (FZ) 2 - Emergency Diesel Generator (EDG) Room A
- FA G1 / FZ 25E - 4.16KV Switchgear Room
- FA A15 / FZ 19 - Cable Spreading Room (CSR)
- B.5.b Mitigation Strategy - Containment Flooding with Portable Pump.

For each of the selected FAs, the team evaluated the licensee's FPP against applicable NRC requirements and licensee design basis documents (DBDs). Documents reviewed by the team are listed in the Attachment.

.01 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The team assessed the licensee's ability to, in the event of a fire, provide a safe shutdown (SSD) success path, free of fire damage, to meet the established nuclear safety goals, objectives and performance criteria. The team examined the RNP's fire response Abnormal Operating Procedures (AOPs), Dedicated Shutdown Procedures (DSPs), nuclear safety capability assessment (NSCA), Fire Hazard Analysis (FHA), calculations, systems flow diagrams, and other documentation that supported the design basis, to determine if equipment required to achieve post-fire safe and stable plant conditions was properly identified and adequately protected from fire damage in accordance with the requirements of 10 CFR 50.48(c) and the RNP approved FPP.

The team reviewed cable routing information for selected samples of NSCA equipment and components to verify that either the associated cables would not be damaged for the selected fire scenarios in the respective FAs or the licensee's analysis/risk insights determined that the fire damage would not prohibit achieving safe and stable plant conditions.

The team conducted interviews of plant operators to determine their knowledge of procedural actions needed to reach a safe and stable condition based upon fire events. The team also reviewed recovery and defense-in-depth operator actions to verify that the operators could reasonably be expected to perform the specific actions within the time required to maintain plant parameters and within established time limits.

b. Findings

No findings were identified.

.02 Passive Fire Protection

a. Inspection Scope

The inspectors walked down the selected FAs/FZs to evaluate the adequacy of the credited fire resistance of the reinforced concrete floor, wall, and ceiling fire barriers. This evaluation also included mechanical and electrical penetrations, fire doors, fire damper assemblies, and electrical raceway fire barrier systems (ERFBS) to ensure that at least one train of SSD equipment would be maintained free of fire damage. The inspectors walked down accessible portions of the selected FAs/FZs to observe the installed barrier assemblies and compared the as-built configurations to the approved construction details, supporting fire endurance test data, licensing basis commitments, and standard industry practices to assure that the respective fire barriers met their intended design function. The inspectors reviewed completed fire door, fire damper, and penetration seal inspection procedures for the selected FAs/FZs to confirm licensing basis commitments were met. The team also reviewed the transient combustibles control program and hot work permit program to ensure licensing basis commitments were being met and maintained. The passive barriers reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.03 Active Fire Protection

a. Inspection Scope

The inspectors reviewed the redundancy of fire protection water sources and fire pumps to confirm that they were installed in accordance with the NFPA codes-of-record to satisfy the applicable separation, design requirements, and licensing basis requirements of the RNP FPP. Current fire protection system health reports were reviewed and discussed with personnel knowledgeable in the operation and maintenance of these systems. The inspectors performed in-plant observations of the material condition and operational lineup for the operation of the fire water pumps and fire protection water supply distribution piping which included manual fire hose and standpipe systems for the selected FAs/FZs. Using operating and valve cycle/alignment procedures as well as engineering drawings, the inspectors examined the fire pumps and accessible portions of the fire main piping system to verify the operational status and the alignment of system valves; and to verify the consistency of as-built configurations with engineering drawings. The inspectors also examined portions of the licensee's NSCA and select electrical circuit routing drawings outlining the fire water pumps' power and pressure start capability to verify that the fire water system would be available to support fire brigade response activities during power block fire events. The inspectors reviewed the licensee's cold weather actions to ensure adequate protection for the fire main and diesel fuel oil to ensure system operation during low temperatures.

The inspectors compared the fire detection and fire suppression systems for the selected FAs/FZs to the applicable NFPA Standard(s) by reviewing design documents and observing their as-installed configurations during in-plant walk-downs. The inspectors reviewed selected fire protection vendor equipment specifications, drawings, and engineering calculations to determine whether the fire detection and suppression methods were appropriate for the types of fire hazards that existed in the selected FAs/FZs. During plant walk-downs, the inspectors observed the placement of the fire hose stations, fire hose nozzle types, and fire hose lengths, as designated in the firefighting pre-plan strategies, to verify that they were accessible and that adequate reach and coverage was provided. Additionally, the inspectors reviewed completed periodic surveillance testing and maintenance program procedures for manual hose stations and automatic fire detection and suppression systems and compared them to required operability, testing, and compensatory measures. The inspectors also reviewed the supply and concentration requirements of gaseous suppression systems to ensure the systems were adequate for the hazards and implemented per the applicable NFPA codes. Inspectors verified the adequacy of the plant's fire extinguishers via material inspection walk-downs and procedural reviews. The inspection activities verified the 12-yr hydro and 6-yr service test dates of a sample of fire extinguishers. The inspectors conducted walk-downs in the selected FAs/FZs to inspect the spacing and material condition of the associated fire extinguishers in those areas. These walk-downs also confirmed that extinguisher access was properly maintained.

Aspects of fire brigade readiness were reviewed, including but not limited to, the fire brigade's personal protective equipment, self-contained breathing apparatuses, portable communications equipment, and other fire brigade equipment located in the fire brigade equipment staging and storage areas to determine accessibility, material condition, and operational readiness of equipment. Because the licensee is not required to have their firefighting pre-plans updated until February 3<sup>rd</sup>, 2018 (one year from the Safety Evaluation, dated February 3<sup>rd</sup>, 2017), the team did not review firefighting pre-plans, as these plans were not yet updated to reflect the new licensing commitments. The team reviewed previous fire drills to validate response assumptions as verify the adequacy of the drills and training. Current mutual aid agreements with outside fire departments were also reviewed. Specific documents reviewed by the inspectors are listed in the Attachment.

b. Findings

No findings were identified.

04. Protection From Damage From Fire Suppression Activities

a. Inspection Scope

The inspectors evaluated whether water-based manual firefighting activities could adversely affect equipment credited for SSD, inhibit access to alternate shutdown equipment, or adversely affect local recovery actions required for SSD in the selected FAs/FZs. The inspectors reviewed available documentation related to flooding analysis from fire protection activities as well as potential flooding through unsealed concrete floor cracks. The inspectors also observed the material condition of floor penetration seals and concrete floor slabs to assess the potential for damage to equipment below. Firefighting pre-plan strategies; fire brigade training procedures; fire damper locations; heating, ventilation and air conditioning (HVAC) drawings; and, fire response procedures were reviewed to verify that ventilation of heat and smoke through HVAC systems from a fire and drainage/runoff from installed fixed fire suppression systems and manual hose streams were addressed. The inspectors also verified access to safe shutdown equipment and recovery actions would not be inhibited by smoke migration from one area to adjacent plant areas used to accomplish SSD. Specific documents reviewed by the inspectors are listed in the Attachment.

b. Findings

No findings were identified.

.05 Alternative Shutdown Capability

a. Inspection Scope

The team assessed the licensee's primary control stations(s) (PCS) to ensure an adequate and timely shutdown was capable of being implemented due to a fire event. A PCS is a dedicated shutdown or alternative shutdown control location, which has been reviewed and approved by the NRC. The team reviewed various licensing correspondence to understand the licensing basis. The team assessed the attributes to



meet these requirements through coordinated efforts between the operations and electrical staff.

### Methodology

The team assessed the adequacy of applicable systems to support the criteria for reactivity control, inventory and pressure control, decay heat removal, vital auxiliaries, and process monitoring. The team reviewed the licensee's FPP, system flow drawings, electrical drawings, and other supporting documents used to achieve the NPSA 805 Nuclear Safety Performance Criteria consistent with licensing basis requirements. For postulated fire scenarios in FA A15, which may impair main control room (MCR) functions, the licensee credited shutdown at various locations via local operator recovery actions. The team reviewed and assessed electrical schematic drawings to verify that circuits for SSD equipment, which could be damaged due to fire, were de-energized and if required were powered via the Dedicated electrical buses. The reviews focused on ensuring that the required functions for post-fire safe and stable conditions and the corresponding equipment necessary to perform those functions were included in the fire response procedures.

### Operational Implementation

The team reviewed DSP-002, "Hot Shutdown Using The Dedicated/Alternate Shutdown System" Rev. 57, to ensure adequacy of the strategy to reach a safe and stable plant condition following evacuation from the MCR. The team performed table-top exercises of the procedure with a licensed operator to gain insights on the procedure adequacy. The inspectors also conducted in-plant walkdowns of the procedure with licensed operators to verify and assess the feasibility and reliability of actions credited to reach a safe and stable condition. The team reviewed the training program for licensed and non-licensed personnel to ensure it included guidance for meeting the nuclear safety performance criteria. The team reviewed time critical actions to ensure that operators could perform necessary actions to achieve safe and stable conditions within required time limits.

#### b. Findings

No findings were identified.

#### .06 Circuit Analyses

##### a. Inspection Scope

The inspectors assessed whether the licensee identified the structures, systems, and components (SSCs) important to meeting the nuclear safety performance criteria were consistent with the established licensing and design basis. The inspectors reviewed the licensee's Updated Final Safety Analysis Report (UFSAR), the NSCA licensee circuit analysis documents, NPFA 805 transition documents, post-fire SSD procedures, electrical schematics, and system flow diagrams to gain an understanding of the licensee's SSD strategy in order to verify that the licensee had properly identified required and associated circuits that could impact the ability to achieve and maintain safe and stable conditions for the selected FAs. The team performed walk-downs of the selected FAs to independently verify the assumptions and results of the licensee's fire

scenario development analysis. The team verified, on a sample basis, that the licensee properly identified cables and equipment required to achieve and maintain safe and stable conditions for the selected fire scenarios in the selected FAs. The team verified that cables associated with SSD-related equipment were protected from the adverse effects of fire damage or were analyzed to show that fire induced cable faults (e.g. hot shorts, open circuits, and shorts to ground) would not prevent shutdown to safe and stable conditions. In order to accomplish this, the team reviewed flow diagrams for SSD systems and electrical schematics and cable routing data for power and control cables associated with each of the selected components to assess the licensee's review of potential flow diversions or mal-operations that may impact the nuclear safety performance criteria.

The inspectors also reviewed cable routing drawings, electrical one-line diagrams, component block diagrams, penetration and conduit plan drawings, and electrical control wiring diagrams for the selected SSD components to determine if these cables had either been adequately protected from the potential adverse effects of fire damage or analyzed to show that fire induced faults would not prevent post-fire SSD, and then the associated risk scenario was incorporated into the licensee's Fire PRA. In addition, the team reviewed cable routing information to verify that fire protection features were in place to satisfy the requirements specified in the fire protection licensing basis and the licensee's evaluations for spurious circuit failure scenarios (single and/or multiple) specified in the circuit analysis to determine if the sample list of components challenged the assumptions made in the SSD analysis. The specific components and references reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.07 Communications

a. Inspection Scope

The inspectors reviewed plant communication capabilities to evaluate the availability of their telephone/page, cell phone, and portable radio systems to support plant personnel in the performance of recovery actions to achieve and maintain SSD, as credited in the RNP UFSAR, Section 9.5.2, "Communications Systems" and the NRC-approved FPP. The team performed plant walk-downs with the licensee's operations staff to assess the credited methods of communications (radios and cell phones) used to complete SSD actions as specified in post-fire SSD procedures for the selected FAs/FZs. Specifically, the team walked down sections of DSPs to verify that the portable radio and cellular communication systems remained available, functional, and adequate for the performance of designated activities. Additionally, the team reviewed the capability of the communication systems to support the operators in the conduct and coordination of their required firefighting and SSD actions.

The team reviewed the adequacy of the communication system to support plant personnel in the performance of alternative post-fire SSD functions and fire brigade duties. The inspectors also reviewed the communication systems available at different locations within the plant that would be relied upon to support fire event notification and fire brigade firefighting activities to verify their availability at those locations.

The inspectors reviewed the cable routing for the radio and associated repeaters system to ensure that the required communication system remained functional following a fire in the selected FAs. Additionally, a walk-down of the Fire Brigade storage locker, MCR, and FLEX dome was conducted to verify the material condition status of the Fire Brigade's and SSD team's communication equipment. The inspectors reviewed preventive maintenance and surveillance test records to verify that the communication equipment was being properly maintained and tested. Specific documents reviewed by the team are listed in the Attachment.

b. Findings

No findings were identified.

.08 Emergency Lighting

a. Inspection Scope

The inspectors verified the adequacy of the plant's emergency lighting systems through review of design and maintenance aspects and inspection walk-downs of the fixed 8-hour battery pack emergency lighting units (ELUs) and portable lanterns, as required by the RNP UFSAR and licensee's approved FPP. Specifically, the team reviewed the adequacy of the ELUs and dedicated shutdown portable lanterns used to support plant personnel during post-fire SSD actions for the selected FAs. The team performed plant walk-downs and observed the placement and coverage area of fixed 8-hour battery pack emergency lights credited for SSD, to evaluate their adequacy for illuminating access and egress pathways and any equipment requiring local operation and/or instrumentation monitoring for post-fire SSD. Specifically, a sample of wall mounted ELUs in the selected FAs/FZs and all dedicated shutdown portable lanterns stored in the MCR, turbine building, and the Auxiliary Operators' office spaces were operationally tested.

The inspectors reviewed preventive maintenance and operational surveillance test records of the emergency lighting systems to verify that adequate surveillance and maintenance practices were in place and the systems were capable of meeting their mission time. Additionally, the team reviewed the licensee's plan to implement a portable headlamp program for all plant operators, maintain the credited dedicated shutdown lanterns in strategic locations throughout the plant, and maintain the wall-mounted safe shutdown ELUs as a defense in depth system as they fully transition to NFPA 805. Specific documents reviewed by the team are listed in the Attachment.

b. Findings

No findings were identified.

.09 Cold Shutdown Repairs

a. Inspection Scope

The nuclear safety goal provided in NFPA 805 is to establish reasonable assurance that a fire during any operational mode and plant configuration will not prevent the plant from

achieving and maintaining the fuel in a safe and stable condition. The licensee defines safe and stable conditions as maintaining reactor coolant temperature at or below hot standby conditions. The licensee does not require transitioning to cold shutdown to achieve the safe and stable condition, and therefore does not require cold shutdown repairs to be implemented. Thus, this section was not reviewed.

b. Findings

No findings were identified.

.10 Compensatory Measures

a. Inspection Scope

(1) Compensatory Measures for Degraded Fire Protection Components

The inspectors reviewed the administrative controls for out-of-service, degraded and/or inoperable fire protection features (e.g. detection and suppression systems, and passive fire barriers) to verify that short-term compensatory measures were adequate for the degraded function or feature until appropriate corrective actions could be taken. The inspectors reviewed impairment and compensatory measures forms for fire watch tours to confirm they were being performed within the allowable time frames.

(2) Operator Manual Actions as Compensatory Measures for Safe Shutdown

The inspectors reviewed applicable sections of RNP Unit 2 Calculation RNP-E/ELEC-1216, AOPs, EOPs, and DSPs, to identify operator manual actions (OMAs) credited for SSD in the selected FAs/FZs. In cases where local OMAs were credited in lieu of cable protection or separation of SSD equipment, the inspectors reviewed nuclear condition report (NCR) 205333, "RIS 2006-010 Manual Action Evaluation," and calculation RNP-E-8.050, "Appendix R Transient Analysis and Timeline Evaluation for H.B. Robinson," to verify that the unapproved OMAs for the selected FAs/FZs had been identified by the licensee, entered in the CAP, and demonstrated to be feasible compensatory measures during the transition to NFPA 805. Additionally, the inspectors performed in-plant walk-downs of a sample of the OMAs to verify that they were feasible, utilizing the guidance of NRC IP 71111.05T, paragraph 02.02.j.2.

b. Findings

No findings were identified.

.11 Radiological Release

a. Inspection Scope

The team reviewed possible radiological release paths to any unrestricted area due to the direct effects of fire suppression activities for each of the selected FAs. The inspectors reviewed the assumptions and methodology listed in their transition LAR to ensure that no radiological release would occur as a result of firefighting activities for fires in the inspected fire areas.

b. Findings

No findings were identified.

.12 Non-Power Operations

a. Inspection Scope

The non-power operations analysis was not reviewed because the requirement for implementation of this aspect of the FPP is not required until February 3<sup>rd</sup>, 2018 (one year from the Safety Evaluation, dated February 3<sup>rd</sup>, 2017). The licensee's procedural and programmatic documents were in draft status at the time of this fire protection inspection and therefore the team did not evaluate this program.

b. Findings

No findings were identified.

.13 Monitoring Program

a. Inspection Scope

The monitoring program was not reviewed because the requirement for program implementation is not required until February 3<sup>rd</sup>, 2018 (one year from the Safety Evaluation, dated February 3<sup>rd</sup>, 2017). The licensee's procedural and programmatic documents were in draft status at the time of this fire protection inspection and therefore the team did not evaluate this program, except for reviewing the Duke Energy fleet procedure, AD-EG-ALL-1503, NFPA 805 Monitoring, Rev. 1, which will be in effect at RNP on February 3<sup>rd</sup>, 2018.

b. Findings

No findings were identified.

.14 Plant Change Evaluation

a. Inspection Scope

The team reviewed the licensee's applicable procedures and processes to ensure the Plant Change Evaluations utilized an approach consistent with the NFPA 805 requirements. The inspectors reviewed plant change evaluation forms and engineering change evaluations to verify that the modifications met the requirements of the fire protection license condition for self-approved changes to the FPP. The team reviewed AD-EG-ALL-1501, Fire Protection Change Process, Rev. 1 to verify that the licensee had a program to determine if a change to the approved FPP could be made without prior NRC approval. The team reviewed to verify the licensee's plant change evaluation process ensured that a change to a previously approved fire protection program element was acceptable and the evaluation process consisted of an integrated assessment of the acceptability of risk, defense-in-depth, and safety margins. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.15 B.5.b Inspection Activities

a. Inspection Scope

The team reviewed the licensee's preparedness to handle large fires or explosions by reviewing an applicable strategy which credited a portable pump to flood containment. The team verified the licensee's ability to meet the requirements of 10 CFR 50.54(hh)(2) and their B.5.b related license conditions by reviewing procedures to ensure that they were being maintained and were adequate. The team performed walkdowns with licensee staff to ensure that credited actions were achievable and feasible. The team assessed if required equipment was properly staged. The team reviewed applicable records to determine if staff were properly trained.

The team also reviewed maintenance and testing records of equipment to ensure that the equipment was being maintained consistent with vendor recommendations and licensee requirements.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

4OA2 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed a sample of recent licensee independent audits, NCRs, self-assessments, and system/program health reports for thoroughness, completeness and conformance to FPP requirements as described in the RNP UFSAR, NPFA 805 Transition Report, and the NRC approved FPP. Guidance for the independent audits are contained in Regulatory Guide 1.189, "Fire Protection for Operating Nuclear Power Plants," and Generic Letter 82-21, "Technical Specifications for Fire Protection Audits."

The team also reviewed Corrective Action Program (CAP) documents, including completed corrective actions documented in selected NCRs, to verify that fire protection deficiencies were adequately identified, evaluated, and that appropriate corrective actions were implemented. The NCRs were reviewed with regard to the attributes of timeliness and apparent cause determination to ensure that proposed corrective actions addressed the apparent cause, report-ability, and operability determinations. In addition, operating experience program documents were also reviewed to verify that industry-identified fire protection problems, potentially or actually affecting RNP were appropriately entered into and resolved by the CAP process and the team evaluated the effectiveness of the corrective actions for the identified issues. Specific documents reviewed by the team are listed in the Attachment.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On December 14, 2017, the lead inspector presented the preliminary inspection results to Mr. E. Kapopoulos and other members of the licensee's staff, who acknowledged the results. The inspectors verified no proprietary information was retained or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

## **SUPPLEMENTARY INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

J. Wild, Reg. Affairs  
J. Brady, Reg. Affairs  
K. Ellis, Reg. Affairs  
J. McCaskill, Operations-Fire Marshal  
D. Schroeder, Eng. Program Manager  
T. Groch, Fire Protection  
K. Lavin, Fire Protection  
B. Weaver, PRA  
J. Ertman, Fleet Risk Informed Fire Protection  
C. Chan, Fleet Risk Informed Fire Protection  
R. Hovland, Probabilistic Risk Assessment  
B. Weaver, Probabilistic Risk Assessment

#### **NRC Personnel**

J. Rotton, Senior Resident Inspector  
A. Beasten, Resident Inspector  
S. Shaeffer, Chief, Engineering Branch 2, DRS, Region II



**LIST OF FIRE BARRIER FEATURES INSPECTED**  
(Refer Report Section 1R05.02- Passive Fire Barriers)

<b><u>Fire Barriers Floors/Walls/Ceiling Identification</u></b> Walls, Floor and Ceilings	<b><u>Description</u></b> FZ 2 FZ 19 FZ 25E
<b><u>Fire Damper Identification</u></b> FD-40 and 41	<b><u>Description</u></b> FZ 19 to FZ 20
<b><u>Fire Door Identification</u></b> FDR 21 FDR 24	<b><u>Description</u></b> FZ 19 to FZ 20 FZ 2 to FZ 7
<b><u>Fire Barrier Penetration Seal Identification</u></b> Penetration 5006.01, 4992, 4994, 6231, 6230, 4991, 6118, 6114, 6112, 6117, 4996, 6110, 6113, 4997, 4998, 4990	<b><u>Description</u></b>  FZ 19 to FZ 18

**LIST OF COMPONENTS REVIEWED**  
(Refer to Report Sections 1R05.01 / 1R05.03 / 1R05.05 / 1R05.06)

<b><u>Component Identification</u></b>	<b><u>Description</u></b>
480V E2	480V Bus Echo 2
AFW-V2-14A	AFW to Steam Generator "A" Supply Motor Operated Valve
CC-716A	CCW Supply Header Isolation Motor Operated Valve
CC-716B	CCW Supply Header Isolation Motor Operated Valve
FCV-626	CCW Return Header Isolation Motor Operated Valve
LCV-115C	VCT Outlet Motor Operated Valve
MCC 3	Motor Control Center MCC-3
MCC 17	Motor Control Center MCC-17
RC-535	Pressurizer PORV Block Motor Operated Valve
RC-536	Pressurizer PORV Block Motor Operated Valve
SI-863B	RHR Pump "B" Discharge to SI Pumps Motor Operated Valve
V6-12A	South Service Water Header Supply Motor Operated Valve
V6-12D	North Service Water Header Supply Motor Operated Valve

## LIST OF DOCUMENTS REVIEWED

### Procedures

AD-EG-ALL-1501, Fire Protection Change Process, Rev. 1  
AD-EG-ALL-1503, National Fire Protection Association (NFPA) 805 Monitoring, Revision 1  
AD-EG-ALL-1521, Hot Work Permits, Rev. 5  
AD-EG-ALL-1540, Fire Protection Nuclear Safety Capability Assessment (NSCA) Rev. 0  
AD-EG-ALL-1541, Circuit Analysis, Rev. 0  
AD-PI-ALL-0300, Self-Assessment and Benchmark Programs, Rev. 2  
AOP-041, Response To Fire Event, Revision 10  
FIR-NGGC-0130, National Fire Protection Association (NFPA) 805 Monitoring, Rev. 0  
FP-001, Fire Emergency, Revision 69  
EDMG-005, Containment Vessel, Rev. 9  
EDMG-010, Emergency Diesel Make-Up Pump Setup and Operation, Rev. 10  
PLP-049, Fuse Control Program, Rev. 12  
PLP-076, Portable Transceiver Usage Rev. 14  
PM-451 Single And Double Pole Thermal-Magnetic Molded Case Circuit Breaker Testing,  
Rev. 23  
PM-465 Inspection And Testing Of Westinghouse Type DB-50 Circuit Breakers, Rev. 33  
OMM-003, Fire Protection Pre-Plans/Unit No. 2, Rev. 77  
OMM-001-4, Communications, Rev. 24  
OST-013, Weekly Checks And Operations (WEEKLY), Rev. 137  
OST-639, Fire Equipment Monthly Inventory, Rev. 36  
OST-405, TSC/EOF/Security Diesel Generator Operational Test, Rev. 39  
OST-406, TSC/EOF/Security Diesel Generator Test, Rev. 36  
OST-603-1, Engine Driven Fire Pump Test, Rev. 9  
OST-603-2, Motor Driven Fire Pump Test, Rev. 2  
OST-906, Emergency Control Station Test, Rev. 28  
OST-918, Dedicated Shutdown Equipment and Instrumentation Check, Rev. 18  
OST-922, Dedicated Shutdown Equipment Identification Audit, Revision 29  
AD-EG-ALL-1520, Transient Controls, Rev.8  
AD-EG-ALL-1521, Hot Work Permits, Rev. 5  
AD-EG-ALL-1522, Duties of a Fire Watch, Rev. 3  
AD-EG-ALL-1523, Temporary Ignition Source Control, Rev. 0  
AD-EG-ALL-1531, Selection, Care, and Maintenance of Firefighting Ensembles, Rev. 0  
AD-EG-ALL-1532, NFPA 805 Pre-Fire Plans, Rev. 1  
AD-EG-ALL-1540, Fire Protection Nuclear Safety Capability Assessment (NSCA), Rev. 0  
AD-OP-ALL-0207, Fire Brigade and Hazmat Team Administrative Controls, Rev. 0  
AD-TQ-ALL-0076, Fire Brigade and Hazmat Training, Rev. 4  
FP-001, Fire Emergency, Rev 69  
FP-012, Fire Protection Systems Minimum Equipment and Compensatory Actions, Rev. 23  
FP-013, Fire Protection Systems Surveillance Requirements, Rev. 13  
FP-014, Control of Fire Barrier Penetrations, Rev. 11  
FPIP-0129, NFPA 805 Fire Safety Analysis, Rev. 2  
OMM-002, Fire Protection Manual, Rev. 51  
OMM-003, Fire Protection Pre-Plans/Unit No. 2, Rev. 77  
OST-623, Fire Barrier Penetration Seal Inspection (18 Month), Rev. 25  
OST-624, Fire Damper Inspection, Rev. 27

PD-EG-ALL-1500, Fleet Fire Protection Program Manual, Rev. 1  
 AOP-041, Abnormal Operating Procedure, Response to Fire Event, Rev. 10  
 DSP-001, Dedicated Shutdown Procedure, Alternate Shutdown Diagnostic, Rev. 16  
 DSP-002, Dedicated Shutdown Procedure, Hot Shutdown Using The Dedicated/Alternate Shutdown System, Rev. 55  
 DSP-002, Dedicated Shutdown Procedure, Hot Shutdown Using The Dedicated/Alternate Shutdown System, Rev. 57  
 DSP-015, Dedicated Shutdown Procedure, Hot Shutdown From The Control Room With A Fire In The Turbine Building  
 OMM-043, Administrative Procedure, Verification and Validation, Rev. 20  
 AP-025, Administrative Procedure, Operator Time Critical Action Program, Rev. 1  
 OST-639, Technical Procedure, Fire Equipment Monthly Inventory, Rev. 36  
 OST-013, Surveillance Test Procedure, Weekly Checks and Operations (Weekly), Rev. 137  
 OMM-041, Administrative Procedure, Writers Guide For Dual Column Format, Rev. 19  
 AD-DC-ALL-0202, Administrative Procedure, Writer's Manual For Procedures and Work Instructions, Rev. 9  
 AD-DC-ALL-0201, Development and Maintenance Of Controlled Procedure Manual, Rev. 20  
 AD-HU-ALL-0004, Administrative Procedure, Procedure and Work Instruction Use and Adherence, Rev. 9  
 AOP-014-BD, Basis Document Component Cooling Water System Malfunction, Rev. 39  
 OP-301, Technical Procedure (Operating), Chemical and Volume Control System, Operations and Alignments, Rev. 116  
 EDMG-005, Extreme Damage Mitigation Guideline, Containment Vessel (CV), Rev. 9  
 EDMG-010, Extreme Damage Mitigation Guideline, Emergency Diesel Make-Up Pump (EDMP) Setup and Operation, Rev. 10

### **Calculations, Evaluations, & Specifications**

RN107-E-20-F, Breaker Coordination Study For 4160-VOLT BUS 5, 480-VOLT BUS 5; And MCCS 15 And 17, Rev. 5  
 RNP-E-2.010, Overcurrent Protection Emergency BUS E1 AND E2 – Normal Supply, Rev. 3  
 RNP-E-8.005, 10 CFR 50 Appendix R Associated Circuit, Common Power Supply Analysis, Rev. 5  
 RNP-E-8.053, Non-Safety Overcurrent Protection Coordination, Rev. 1  
 RN107-E-13-F, Coordination Study For 480V BUSES 4 AND DS; MCCS 11, 12, 13 AND 14 PANELS PP 28 AND PP 47; PAP Panel HA; And The DS Power Panel, Rev. 1  
 RNP-M/MECH-1875, NFPA 805 Transition - Fire Area G5 Fire Safety Analysis for Unit 2, Rev. 0  
 RNP-M/MECH-1862, NFPA 805 Transition - Fire Area A15 Fire Safety Analysis for U2, Rev. 0  
 RNP-M/MECH-1867, NFPA 805 Transition - Fire Area G1 Fire Safety Analysis for Unit 2, Rev. 0  
 DBD/R87038/SD62, Sys DBD – Cable and Raceway System, Rev. 5  
 EE 84-043, Qualification of Rockbestos Fire Zone R Cable to IEEE-383 Verticle (sic) Flame Test  
 EE-90-104, Generic Evaluation of HVAC Fire Damper and Fire Door Installation Discrepancies, Rev. 0  
 EE 92-0090, Evaluation of Abandoned Cables Inside Containment, Rev. 0  
 GID/R87038/0014, Fire Barrier System, Rev. 7  
 NED-B/BOP-1001, Comparative Analysis of Fire Propagation Characteristics of UL-910 and IEEE-383 Qualified Cables, Rev. 0  
 NED-M/MECH-1006, Generic Fire Modeling Treatments, Rev. 0  
 RNP-E/ELEC-1216, The Fire Safe Shutdown Analysis for H.B. Robinson Nuclear Plant, Rev. 2  
 RNP-F/PSA-0066, RNP Fire PRA – Component Selection, Rev. 6  
 RNP-F/PSA-0067, RNP Fire PRA – Plant Partitioning and Ignition Frequency, Rev. 3

RNP-F/PSA-0079, Fire Scenario Data, Rev. 2  
 RNP-F/PSA-0094, RNP Fire PSA Quantification, Rev. 2  
 RNP-F/PSA-0094, RNP Fire PSA Quantification, Rev. 3  
 RNP-F/PSA-0095, RNP Fire PRA – Application Calculation, Rev. 3  
 RNP-M/BMRK-1001, Code Compliance Evaluation NFPA 10 Portable Fire Extinguishers, Rev. 6  
 RNP-M/BMRK-1002, Code Compliance Evaluation NFPA 30 – Unit 2 Diesel Fuel Oil Tanks, Rev. 4  
 RNP-M/BMRK-1003, Code Compliance Evaluation NFPA 80 – Standard for Fire Doors and Windows, Power Block, Rev. 03  
 RNP-M/BMRK-1004, Code Compliance Evaluation for NFPA 90A 1976 & 1985 Editions, Rev. 3  
 RNP-M/BMRK-1005, Code Compliance Evaluation NFPA 72D, Rev. 2  
 RNP-M/BMRK-1006, Code Compliance Evaluation for NFPA 72E, Rev. 6  
 RNP-M/BMRK-1007, Code Compliance Evaluation NFPA 12, Carbon Dioxide Extinguishing Systems, Rev. 4  
 RNP-M/BMRK-1008, Code Compliance Evaluation for NFPA 12A, Halon Fire Extinguishing Agent Systems – Halon 1301, Rev. 3  
 RNP-M/BMRK-1009, Code Compliance Evaluation for NFPA 13 – Standard for Installation for Sprinkler Systems, Rev. 9  
 RNP-M/BMRK-1010, Code Compliance Evaluation NFPA 14 – Standpipes and Hose Systems, Rev. 9  
 RNP-M/BMRK-1011, Code Compliance Evaluation NFPA 15 – Water Spray Fixed Systems, Rev. 3  
 RNP-M/BMRK-1012, Code Compliance Evaluation for NFPA 20, Centrifugal Fire Pumps, Rev. 5  
 RNP-M/BMRK-1013, Code Compliance Evaluation NFPA 24 – Standard for Installation of Private Service Mains and Their Appurtenances, Rev. 6  
 RNP-M/BMRK-1014, Code Compliance Evaluation NFPA 72 National Fire Alarm Code, Rev. 5  
 RNP-M/BMRK-1015, Code Compliance Evaluation for NFPA 50A, Standard for Gaseous Hydrogen Systems and Consumer Sites – 1999 Edition, Rev. 0  
 RNP-M/BMRK-1016, Code Compliance Evaluation for NFPA 37, Standard for the Installation and Use of Stationary Engines and Gas Turbines, Rev. 1  
 RNP-M/BMRK-1019, Code Compliance Evaluation NFPA 2001 – Standard on Clean Agent Fire Extinguishing Systems, Rev. 0  
 RNP-M/MECH-1697, Evaluation of NFPA 72E Code Compliance Variances, Rev. 1  
 RNP-M/MECH-1708, Evaluation of NFPA 12 Code Compliance Variances, Rev. 2  
 RNP-M/MECH-1709, Evaluation of NFPA 14 and 24 Code Compliance Variances, Rev. 4  
 RNP-M/MECH-1725, Evaluation of NFPA 13 Code Compliance Variances, Rev. 2  
 RNP-M/MECH-1726, Evaluation of NFPA 15 Code Compliance Variances, Rev. 2  
 RNP-M/MECH-1826, Hot Gas Layer Calculation, Rev. 03  
 RNP-M/MECH-1917, RNP Fire Modeling for FSD (Source-Specific ZOI), Rev. 0  
 RNP-M/MECH-1918, Two-Hour Fire Seal Exemption Resolution, Rev. 0  
 RNP-E-8.050, Appendix R Transient Analysis And Timeline Evaluation, Rev. 2  
 ESR# 95-00210, Revision to EOP/AOP/DSP Setpoint/Basis, Rev. 0  
 RNP-M/MECH-1785, Alternate Spent Fuel Pool and RCS Makeup Water, Rev. 2  
 RNP-E-8.016, Emergency Diesel Generator Static And Dynamic Analysis for H.B. Robinson Unit NO. 2, Rev. 10  
 RNP-M/MECH-1845, NFPA 805 Transition – Fire Area A2 Fire Safety Analysis For Unit 2, Rev. 0  
 RNP-M/MECH-1845, NFPA 805 Transition – Fire Area A15 Fire Safety Analysis For Unit 2, Rev. 0  
 RNP-M/MECH-1845, NFPA 805 Transition – Fire Area G1 Fire Safety Analysis For Unit 2, Rev. 0

RNP-E/ELEC-1216, Compliance Assessment by Scenario, Fire Area A2, Rev. 2  
 RNP-E/ELEC-1216, Compliance Assessment by Scenario, Fire Area A15, Rev. 1  
 RNP-E/ELEC-1216, Compliance Assessment by Scenario, Fire Area G1, Rev. 2

### **Work Orders**

WO 13419062, Dedicated Shutdown Equipment Identification Audit, 02/23/2016  
 WO 13510021, OST-906 Emergency Control Station Test, 03/24/2017  
 WO 20053840, Dedicated Shutdown Equipment Identification Audit, 10/16/2017  
 WO 20105677, OST-405 TSC/EOF/Security Diesel Generator Operational Test, 02/06/2017  
 WO 20149718, OST-405 TSC/EOF/Security Diesel Generator Operational Test, 08/03/2017  
 WO 20166338, OST-603-1 Engine Driven Fire Pump Test, 10/22/2017  
 WO 20199000, OST-639 Fire Equipment Monthly Inventory, 10/03/2017  
 WO 20199004, OST-406 TSC/EOF/Security Diesel Generator Test, 10/06/2017  
 WO 20203081, OST-918 Dedicated Shutdown Equipment and Instrumentation Check,  
 10/25/2017  
 WO 20204585, OST-406 TSC/EOF/Security Diesel Generator Test, 11/01/2017

### **Drawings**

5137-M-2014, Diesel Generator Room Floor Drain Modification, Rev. 2  
 5379-1082, Safety Injection System Flow Diagram, Rev. 55  
 B-190628 Sh. 231, Control Wiring Diagram, Rev. 17  
 B-190628 Sh. 232, Control Wiring Diagram, Rev. 20  
 B-190628 Sh. 281, Control Wiring Diagram, Rev. 14  
 B-190628 Sh. 647A, Control Wiring Diagram, Rev. 13  
 B-190628 Sh. 647B, Control Wiring Diagram, Rev. 14  
 B-190628 Sh. 647C, Control Wiring Diagram, Rev. 10  
 B-190628 Sh. 836, Control Wiring Diagram, Rev. 12  
 B-190628 Sh. 839A, Control Wiring Diagram, Rev. 13  
 B-190628 Sh. 892, Control Wiring Diagram, Rev. 25  
 B-190628, Control Wiring Diagram Emergency DC PWR Supply System, Rev. 15  
 HBR2-10055, HBR Training, EOF And TSC Building Single Line Wiring Diagram, Rev. 12  
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary  
 Diagram, Rev. 29  
 Figure 9.5.1-8, General Arrangement Turbine Building Mezzanine Floor Plan, Rev. 27  
 Figure 9.5.1-3, Fire Zones – Auxiliary and Reactor Buildings, Rev. 27  
 G-190204D, Fuel Oil System Flow Diagram, Sheet 2, Rev. 28  
 HBR2-09716, Fire Barrier Penetrations, Sheet 317, Rev. 9  
 HBR2-09716, Fire Barrier Penetrations, Sheet 324, rev. 5  
 NBR2-09868, Unit 1 and Unit 2 Fire Water Yard Piping, Rev. 24  
 HBR2-09800, Sht. 0, H.B. Robinson Plant Plot Plan, Rev. 0  
 SD-003, RHR System Flow Diagram (For Training Use Only), Rev. 1  
 SD-024, Containment Spray System Flow Diagram (For Training Use Only), Rev. 4  
 SD-041, Fire Water System Flow Diagram (For Training Use Only), Rev. 3  
 5379-1082, Sht. 2, Safety Injection System Flow Diagram, Rev. 28  
 5379-1082, Sht. 3, Safety Injection System Flow Diagram, Rev. 55  
 HBR2-11390, Sht. 2, Reactor Inventory And Pressure Control (Reactor Coolant System), Rev. 6  
 HBR2-11390, Sht. 3, Reactor Inventory And Pressure Control (Reactor Coolant System), Rev. 6  
 HBR2-11390, Sht. 4, Reactor Inventory And Pressure Control (Normal Charging System),  
 Rev. 8  
 HBR2-11390, Sht. 5, Reactor Inventory And Pressure Control (Normal Charging System),  
 Rev. 8

HBR2-11390, Sht. 7, Reactor Inventory And Pressure Control (Safety Injection System), Rev. 13

HBR2-11390, Sht. 8, Reactor Inventory And Pressure Control (Safety Injection System), Rev. 6

HBR2-11390, Sht. 13, Secondary System Cooling (Main Steam System), Rev. 11

HBR2-11390, Sht. 14, Secondary System Cooling (Auxiliary Feedwater System), Rev. 12

HBR2-11390, Sht. 16, Secondary System Cooling (Auxiliary Feedwater System), Rev. 29

HBR2-11390, Sht. 25, Shutdown Cooling (Residual Heat Removal System), Rev. 9

HBR2-11390, Sht. 26, Support Function (Component Cooling Water System), Rev. 9

HBR2-11390, Sht. 28, Support Function (Component Cooling Water System), Rev. 7

HBR2-11390, Sht. 31, Support Function (Service Water System), Rev. 12

HBR2-11390, Sht. 34, Support Function (Service Water System), Rev. 7

### **Completed Surveillance Procedures, Test Records**

MOD-445D, Fire Protection Modification Halon Suppression System Test Reports

OST-623, Fire Barrier Penetration Seal Inspection (18 Month), Rev. 25, Completed 9/18/2016

OST-624, Fire Damper Inspection, Rev. 26, Completed 9/15/2017

OST-632, Unit 2 Fire Suppression Water System Flow Test, Rev. 24, Completed 11/29/2017

WO 20199000, OST-639, Fire Equipment Monthly Inventory, 11/4/17

WO 02149418-10, EPPRO-02, Annual B5B Response Building Permanent Flex Storage, 10/27/17

WO 20163225, EDMP-PMP, Perform Quarterly Maintenance, 10/10/17

### **Plant Modifications and Engineering Changes**

EC 273059, IDENTIFY REACTOR TRIP POSITION FOR NFPA-805 PRA ANALYSIS, Rev. 0

EC 283701, Installation EC for Replacement of the Waste Gas Analyzer Cabinet Obsolete Equipment as per Specification 677011, Rev. 0

EC 297203, Install Cut-Out Switch in Main Control Room to Isolate Loads in Aux. Panel GC to Eliminate SISBO as Fire Event Coping Method, Rev. 0

EC 404636, Oil Collection System for IA-CMP-B and SA-CMP, PRA and NFPA 805, Rev. 0

EC 908490, Evaluation for IN 92-18 MOVs, Rev. 0

### **Fire Fighting Preplan Strategies**

OMM-003, Plant Operating Manual Volume 3 Part 1, Fire Protection Pre-Plans/Unit No. 2, Rev. 77

### **Applicable Codes & Standards**

NFPA 30, Flammable and Combustible Liquids Code, 1966 Edition

NFPA 30, Flammable and Combustible Liquids Code, 1977 Edition

NFPA 72E, Automatic Fire Detectors, 1984 Edition

NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 edition

ASME/ANS RA-SA-2009, Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications

### **Technical Manuals, Vendor Information**

FP15OODI-TC, PE Cast Iron Pumping Unit, March 2006

**Audits & Self-Assessments**

OMM-043, Time Critical Action (TCA) Validation and Determination, Establish AFW Flow to S/Gs, 5/27/16

AP-025, Time Critical Action (TCA) Validation and Determination, Energize DS Bus Using DSDG, 3/16/16

OMM-043, Time Critical Action (TCA) Validation and Determination, Start CCW Pump To Provide Cooling To Charging Pump, 6/6/16

**License Basis Documents**

HBR2 UFSAR, Section 9.5.1, Fire Protection System, Rev. 15

HBR2 UFSAR, Appendix 9.5.1A, Fire Hazards Analysis, Rev. 19

HBR2 UFSAR, Appendix 9.5.1B, Fire Protection Description and Review, Rev. 14

HBR2 UFSAR, Appendix 9.5.1C, Post-Fire Safe-Shutdown Analysis Report, Rev. 18

HBR2 UFSAR, Section 9.5.2, Communication Systems, Rev. 25

HBR2 UFSAR, Section 9.5.3, Lighting Systems, Rev. 22

RNP-RA/14-0122, Response (60-Day) to Request for Additional Information Associated with License Amendment Request to Adopt National Fire Protection Association (NFPA) Standard 805, Dated 11/24/2014

H. B Transition Report to 10 CFR 50.48(c) – NFPA 805 Performance-Based Standard For Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition, Rev. 1

H.B. Robinson Steam Electric Plant Unit 2 Renewed Facility Operating License DPR-23

**Other Documents**

H. B. Robinson Unit 2 Transition to 10 CFR 50.48(c) - NFPA 805 Report, Rev. 1

RNP MSO Expert Panel Report, May 8, 2012

RNP-E/ELEC-1216, The Fire Safe Shutdown Analysis For H. B. Robinson Nuclear Plant, Rev. 2  
System Health Report, 5170 - Medium Voltage AC Distribution, Q4 2016

System Health Report, 5095/5100 - Emergency Diesel Generators and Auxiliaries, Q4 2016

NUCLEAR OVERSIGHT - Audit Robinson Fire Protection Program Audit 2016-RNP-FP-01

SAST 1969649, 2015 Fire Protection QHSA (INPO Readiness), 12/18/2015

SAST 1940059, HBRSEP Fire Protection NFPA 805 Implementation and Triennial Readiness Self-Assessment, 06/22/2017

FPQ0001R, 1<sup>st</sup> Annual Fire Drill, 4kV Room, Dated 5/29/2017

EPPRO-02, Plant Operating Manual Volume 2 Part 5, Maintenance and Testing, Rev. 45

DUKE-QAPD-001, Duke Energy Corporation Topical Report – Quality Assurance Program Description

FAQ 12-0061, NFPA 805 Change Process, Rev. 3

FAQ 06-0022, Acceptable Electrical Cable Construction Tests, Rev. 3

NUREG/CR-6850, EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities, Volume 2: Detailed Methodology

NUREG-2178, Refining and Characterizing Heat Release Rates from Electrical Enclosures During Fire (RACHELLE-FIRE)

**Action Requests (ARs) /Condition Reports (CRs) Reviewed During Inspection**

NCR 0716026, 2014 TFPI Inadvertent CO2 Actuation in Cable Vaults, 10/30/2014

NCR 0719077, Remote Emergency Light PM, 11/17/2014

NCR 2004383, U1 Decommission Impacts DSP Required Operator Actions, 02/24/2016

NCR 2054396, CDBI 2016: Lack of Fixed Emergency Lighting in the BIT Room, 08/17/2016

NCR 2110228, ELS-121 FAILED DURING OST-163, 03/22/2017

NCR 2114526, Transition of Firewatches from App R to NFPA 805 Requirements, 04/05/2017

NCR 2148209, Drawing/Documentation issues with ELS-94/95/96/163/164/165, 09/04/2017

NCR 2161698, Effects of Suspending ELS PMs NOT Fully Considered, 10/30/2017  
PRR-02040948, DSP-002 R056  
CR-02041232, DSP-002 R056 -PRR on Time Critical Action corrections  
NCR- 02163369, B.5.B. Self-Assessment (EDMG Walk-downs) CANCEL THIS NCR  
NCR- 00753062, Equipment Relocated From B5B BLDG To Flex Dome

**List of ARs Generated as a Result of This Inspection**

2172290, RNP 2017 NRC TFPI, FAQ 06-0022 cable tests  
2172012, RNP 2017 NRC TFPI, RNP FSSPMD Circuit Analysis and Cable Routing  
2170897, 2017 RNP TFPI, Clarification of start time for CCW cooling  
2170480, RNP-F/PSA-0094 Revision 3 clarification regards FAQ 14-0009  
2170133, 2017 RNP TFPI: Error found in PRA calculation RNP-F/PSA-0079  
2170129, 2017 RNP TFPI, document review RNP-F/PSA-0094  
2168587, 2017 RNP TFPI: Sound Power Phones Described in UFSAR  
2168264, ELS-26 Failed Acceptance Criteria  
2168258, ELS-16 Charge Light Solid  
2168461, 2017 RNP TFPI: Revise NFPA 72E Code Compliance Calculations  
2168331, 2017 RNP TFPI (DSP-002 Revision wrong in Old FEB)  
2168181, 2017 RNP TFPI: Correct Typo Identified in RNP-EELEC-1216  
02172397, 2017 RNP TFPI Clarification of Comment in RNP-E/ELEC-1216  
02172502, 2017 RNP TFPI Dedicated Conduit in RNP-E/ELEC-1216  
2172279, Notes and Cautions in Two Column Format Procedures