



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

June 18, 2018

Mr. Bryan C. Hanson
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: ERRATA FOR JAMES A. FITZPATRICK NUCLEAR POWER PLANT –
INTEGRATED INSPECTION REPORT 05000333/2017001

Dear Mr. Hanson:

The U.S. Nuclear Regulatory Commission (NRC) has identified three errors in NRC Integrated Inspection Report 05000333/2017001, dated May 8, 2017 (ADAMS Accession No. ML17128A109).

1. Inspection Procedure 71124.01, "Radiological Hazard Assessment and Exposure Controls," Sample 2.06 – Risk-Significant High Radiation Area and Very High Radiation Area Controls – was performed by an NRC inspector; however, it was inadvertently not documented in the inspection report.
2. Inspection Procedure 71124.03, "In-Plant Airborne Radioactivity Control and Mitigation," Sample 02.03 – Use of Respiratory Protection Devices – was performed by an NRC inspector; however, it was inadvertently not documented in the inspection report.
3. Inspection Procedure 71124.03, "In-Plant Airborne Radioactivity Control and Mitigation," Sample 02.01 – Engineering Controls – was inadvertently documented in the inspection report. This sample, however, was not performed during this inspection period. It had been performed in 2016, as documented in NRC Integrated Inspection Report 05000333/2016002, dated August 12, 2016 (ADAMS Accession No. ML16225A426).

These errors affect Section 2RS1 and Section 2RS3 of the report. As a result, the NRC is reissuing the report in its entirety to correct this error. The necessary corrections are reflected in the enclosed revised report.

B. Hanson

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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/

Anthony Dimitriadis, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket No. 50-333
License No. DPR-59

Enclosure:
Inspection Report 05000333/2017001
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

SUBJECT: ERRATA FOR JAMES A. FITZPATRICK NUCLEAR POWER PLANT –
 INTEGRATED INSPECTION REPORT 05000333/2017001 dated June 18, 2018

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 50-333

License No. DPR-59

Report No. 05000333/2017001

Licensee: Exelon Generation Company, LLC

Facility: James A. FitzPatrick Nuclear Power Plant

Location: Scriba, NY

Dates: January 1, 2017, through March 31, 2017

Inspectors: B. Sienel, Senior Resident Inspector
J. Pfingsten, Resident Inspector
G. Stock, Resident Inspector
S. Anderson, Reactor Inspector
E. Burket, Reactor Inspector
R. Rolph, Health Physicist

Approved By: Arthur L. Burritt, Chief
Reactor Projects Branch 5
Division of Reactor Projects

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SUMMARY

IR 05000333/2017001; 01/01/2017 – 03/31/2017; James A. FitzPatrick Nuclear Power Plant (FitzPatrick); Routine Integrated Inspection Report.

This report covered a three-month period of inspection by resident inspectors and announced baseline inspections performed by regional inspectors. The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated October 28, 2016. Cross-cutting aspects are determined using IMC 0310, "Aspects Within Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

No findings were identified.

REPORT DETAILS

Summary of Plant Status

FitzPatrick began the inspection period operating at approximately 57 percent power, the maximum power achievable due to fuel depletion as the reactor was at the end of this operating cycle. Due to fuel depletion, power continued to decrease to approximately 54 percent on January 13, 2017. On January 14, operators shut down the reactor to commence refueling outage (RFO) 22. Upon completion of refueling and maintenance activities, operators performed a reactor startup on February 23. The generator was placed online February 25, 2017, ending RFO 22. Operators increased reactor power to approximately 91 percent on February 27. On February 28, operators reduced power to approximately 54 percent for a control rod pattern adjustment. Operators increased power to approximately 100 percent on March 1. Operators reduced power to 89 percent for another rod pattern adjustment on March 2. Power was restored to 100 percent later that day, where it remained for the rest of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment

Partial System Walkdowns (71111.04 – 4 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 'B' core spray system while protected for shutdown risk during RFO 22 on January 18, 2017
- 'A' core spray system while protected for shutdown risk during RFO 22 on January 26, 2017
- Residual heat removal (RHR) shutdown cooling during RFO 22 on February 9, 2017
- 'A' RHR system during planned maintenance on the 'B' RHR system on March 7, 2017

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the Updated Final Safety Analysis Report (UFSAR), technical specifications (TSs), work orders (WOs), condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted the system's performance of its intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether the licensee had properly identified equipment issues and entered them into the corrective action program (CAP) for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

Resident Inspector Quarterly Walkdowns (71111.05Q – 5 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that the licensee controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Turbine building, 272 foot elevation, fire zone TB-1 on January 20, 2017
- Turbine building, 300 foot elevation and 292 foot elevation, fire zone TB-1 on January 20, 2017
- Relay room, fire area/zone VII/RR-1 on February 27, 2017
- Reactor building, 272 foot elevation, fire area/zone IX/RB-1A on February 28, 2017
- Reactor building, 300 foot elevation, fire area/zone VIII/RB-1C, IX/RB-1A, X/RB-1B on March 16, 2017

b. Findings

No findings were identified.

1R08 Inservice Inspection (71111.08G - 1 sample)a. Inspection Scope

From January 23 to 26, 2017, the inspectors conducted an inspection and review of inservice examination activities in order to assess the effectiveness of the licensee's program for monitoring degradation of the reactor coolant system boundary, risk-significant piping and components, and containment systems during FitzPatrick RFO 22. The sample selection was based on the inspection procedure objectives and risk priority of those pressure retaining components in these systems where degradation would result in a significant increase in risk.

Non-Destructive Examination (NDE) and Welding Activities (Section 02.01)

The inspectors observed or reviewed the following NDE activities and completed data records:

- Manual phased array ultrasonic testing (UT), volumetric inspection, American Society of Mechanical Engineers (ASME) Class 1, 24 inch 'A' RHR dissimilar

metal weld 24-10-130, and 24 inch 'B' RHR dissimilar metal welds, 24-10-142 and 24-10-144

- Visual testing (VT), visual inspection record, ASME International Welding Engineer (IWE) Examination Category E-A, general visual examination of exterior containment surfaces from elevations 272-369
- VT inspection record and video review, ASME IWE Category E-A, general visual examination of torus below the water line surfaces

For each evaluation, the inspectors verified NDE activities were performed in accordance with the 2001 Edition, 2003 Addenda, of the ASME Boiler and Pressure Vessel (BPV) Code requirements. The inspectors also verified the NDE activities met the requirements contained in ASME Section XI, Mandatory Appendix VIII, Article VIII-2000 and the examination personnel were qualified in accordance with ASME Section XI, Mandatory Appendix VII. The inspectors verified that indications and defects, if present, were dispositioned in accordance with the ASME Code.

For the general visual examinations, the inspectors ensured that difficult to access areas or areas made visible by maintenance activities were included within the scope of the visual examination. Additionally, the inspectors verified the basis for declaring some containment areas as inaccessible for visual examination by comparing the basis against previous containment visual examination records.

The inspectors also performed a walk down of the accessible areas of the drywell to independently assess the condition of the drywell liner.

The inspectors reviewed video of the VT, including VT-3, VT-1, and EVT-1; and results of several components examined in accordance with the licensee's boiling water reactor vessel and internals project in-vessel visual inspection program. The inspectors verified the activities were performed in accordance with the licensee's augmented inspection program and associated examination procedure. The inspectors verified indications and defects, if present, were dispositioned in accordance with the licensee's procedures and NRC requirements.

Re-examination of an Indication Previously Accepted for Service after Analysis

A relevant linear indication was identified in integral attachment weld 24-29-626A pipe support saddle during the previous outage, RFO 21. An analysis was performed and the indication was accepted for continued service until the RFO 22 refueling outage.

The inspectors reviewed the NDE summary reports for the VT, magnetic particle testing, and liquid penetrant testing for the relevant indication to verify the activities were performed in accordance with the 2001 Edition, 2003 Addenda, of the ASME BPV Code requirements. The inspectors also reviewed the engineering evaluation to verify the analysis was consistent with the guidance in ASME Section XI, IWB-3132.3, Acceptance by Analytical Evaluation.

Modification/Repair/Replacement Consisting of Welding on Pressure Boundary Risk Significant Systems

The inspectors reviewed the welding activity documentation and associated NDE results for the repair of the relevant indication previously identified on the ASME Class 1 main

steam system integral attachment weld 24-29-626A. The inspectors verified that the welding, NDE, and acceptance were performed in accordance with the 2001 Edition, 2003 Addenda of the ASME BPV Code requirements and the licensee's repair and replacement program. Specifically, the inspectors verified the welding procedure specification contained the essential, and where applicable, the supplemental essential variables, in conformance with ASME Section IX, QW-200, and that the weld variables were within the range qualified by the supporting procedure qualification record as required by ASME Code Section IX, QW-250.

Identification and Resolution of Problems (IMC 02.05)

The inspectors reviewed a sample of CRs which identified NDE indications, deficiencies, and other nonconforming conditions since the previous RFO. The inspectors verified that nonconforming conditions were properly identified, characterized, evaluated, corrective actions identified and dispositioned, and appropriately entered into the CAP.

b. Findings

Introduction. The inspectors identified an unresolved item (URI) during the inspection and concluded that additional information was needed to determine if a performance deficiency existed and if so, whether the issue is more than minor and/or involves a violation of regulatory requirements. Specifically, the inspectors noted a discrepancy in the license renewal application for FitzPatrick and subsequent response to an audit question regarding the existence and inspection of a moisture barrier in the drywell between the concrete floor and metal liner.

Description. While evaluating drywell containment examination records, the inspectors reviewed FitzPatrick license renewal documents related to the drywell and identified an issue for which more information is needed to determine whether there is a performance deficiency. Specifically, the inspectors noted that NUREG-1905, "Safety Evaluation Report Related to the License Renewal of James A. FitzPatrick Nuclear Power Plant," (ML081510826) referenced a drywell floor moisture barrier in Section 3.5.2.1.1. However, during a drywell walkdown, the inspectors noted that no moisture barrier existed on the drywell floor between the drywell liner and the concrete floor. The inspectors further noted that Section 3.5.2.2.1.4 of the initial license renewal application (ML062160494) submitted in July 2006, described a moisture barrier that was to be inspected as part of the IWE Program and Structures Monitoring Program, and that in Amendment 9 to the license renewal application (ML071060390), an audit question discussed the moisture barrier condition.

The inspectors noted that this location in the drywell was visually inspected once per period in accordance with the licensee's Fourth Ten-Year Interval Inservice Inspection Program, SEP-ISI-007, and that inspection results have not shown significant liner degradation. Additionally, the licensee performs augmented UT thickness inspections of the drywell liner interface in accordance with their augmented inspection program.

In response to the inspectors' concerns, the licensee entered this issue into the CAP as CR-JAF-2017-00906 for further evaluation. For the first corrective action (CA 1) in the CR, the licensee reviewed inspection reports, design requirements, and drawings to determine whether a moisture barrier previously existed between the containment drywell liner and containment drywell concrete floor. The licensee concluded on

February 16, 2017, that the moisture barrier had never existed in that location. The licensee has a planned corrective action (CA 2) to determine the appropriate actions to address the apparent discrepancy in information with a due date of May 24, 2017. The inspectors will review the licensee's conclusions and assessment of the issue and independently determine whether there is a performance deficiency and if so, whether the issue is more than minor and/or involves a violation of regulatory requirements. Pending resolution, this issue is an URI. **(URI 05000333/2017001-01, Drywell Moisture Barrier Description in License Renewal Application)**

1R11 Licensed Operator Regualification Program and Licensed Operator Performance (71111.11Q – 2 samples)

.1 Quarterly Review of Licensed Operator Regualification Testing and Training

a. Inspection Scope

The inspectors observed a licensed operator simulator exam on March 22, 2017, which included an earthquake and unisolable torus leak. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the crew. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

On January 14, 2017, the inspectors observed control room operators during the reactor shutdown for RFO 22. Portions of the reactor shutdown including crew briefs; control rod insertion; removal of the main generator from service; and main turbine, nuclear instrumentation, and rod worth minimizer testing were observed. The inspectors observed crew performance to verify that procedure use, crew communications, and coordination of activities between work groups met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 2 samples)a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance WOs, and maintenance rule basis documents to ensure that the licensee was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the structure, system, or component was properly scoped into the maintenance rule in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65 and verified that the (a)(2) performance criteria established by licensee staff was reasonable. As applicable, for structures, systems, and components classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these structures, systems, and components to (a)(2). Additionally, the inspectors ensured that licensee staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Main steam isolation valve (MSIV) local leak-rate test results during RFO 22
- Residual heat removal service water (RHRSW) keep full service water supply line silt buildup on January 25, 2017

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that the licensee performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When the licensee performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid, and applicable requirements were met.

- 66UC-22H, east crescent area unit cooler isolation following identification of increased erosion on January 3, 2017
- Shutdown risk assessment for risk window 2/3 during RFO 22 on January 18, 2017

- Outage risk assessment during operation with a potential for draining the reactor vessel (OPDRV) window on January 23, 2017
- Outage risk during emergent welding activities (OPDRV) on February 1, 2017
- Planned maintenance on the 'A' low pressure coolant injection inverter the week of March 20, 2017

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 5 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions based on the risk significance of the associated components and systems:

- CR-JAF-2017-0575 concerning operability of the 'B' source range monitor on January 26, 2017
- CR-JAF-2017-0610 regarding operability of 10AOV68B after failing to fully stroke for surveillance testing on January 26, 2017
- EC 69512 concerning RHR strainer functionality during the RFO 22 performance of ST-9CB with a temporary repair installed (before the temporary modification installation) on February 1, 2017
- CR-JAF-2017-0848 regarding core cell 38-39 operability with a loose alignment pin and modified fuel support casting on February 7, 2017
- CR-JAF-2017-0812 concerning RHR strainer operability with temporary modification installed for operating cycle 23 on February 14, 2017

The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and UFSAR to the licensee's evaluations to determine whether the components or systems were operable. The inspectors confirmed, where appropriate, compliance with bounding limitations associated with the evaluations. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by the licensee.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 3 samples).1 Temporary Modificationsa. Inspection Scope

The inspectors reviewed the temporary modifications listed below to determine whether the modifications affected the safety functions of systems that are important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modifications to verify that the temporary modifications did not degrade the design bases, licensing bases, and performance capability of the affected systems.

- Engineering change (EC) 66088, provide isolation between RHRSW and secondary containment for work on 10MOV-89B on January 31, 2017
- EC 69507, temporary RHR suction strainer shells on February 7, 2017

b. Findings

No findings were identified.

.2 Permanent Modificationsa. Inspection Scope

The inspectors evaluated a permanent modification to replace 10MOV-89B, RHR heat exchanger 'B' service water outlet isolation valve, implemented by EC 67365, 10 MOV-89A/B replacement. The inspectors verified that the design bases, licensing bases, and performance capability of the affected system were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the upgrade and design change. The inspectors also reviewed the successfully completed surveillance test conducted to verify system operability following the valve replacement.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 8 samples)a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with the information in the applicable licensing basis and/or design basis documents, and that the test results were properly reviewed and accepted and problems were appropriately documented. The inspectors also walked down the affected job site, observed the pre-job brief and post-job critique where possible, confirmed work site cleanliness was maintained, and witnessed the test or reviewed test data to verify quality control hold points were performed and checked, and that results adequately demonstrated restoration of the affected safety functions.

- WO 341278, 'B' standby liquid control relief valve replacement on January 21, 2017
- WO 52473778, 'C' main steam line isolation valve, 29AOV-80C, actuator replacement on January 27, 2017
- WO 453213, Hydraulic control unit (HCU) 26-23 directional control valve replacement on January 31, 2017
- WO 403664, 'C' safety relief valve replacement on February 9, 2017
- WO 396857, fuel cell 38-39 fuel support casting modification on February 9, 2017
- WO 52607951, inspections and post-maintenance tests for multiple completed maintenance activities during ST-39H, reactor pressure vessel system leakage test and control rod drive Class 2 piping inservice test, on February 22, 2017
- WO 457224, 'A' reactor water recirculation pump motor generator voltage regulator replacement on February 27, 2017
- WO 466553, 'A' RHR suction strainer temporary modification installation on February 10, 2017

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 1 sample)

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for FitzPatrick RFO 22, conducted January 14 through February 25, 2017. The inspectors reviewed the licensee's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable TSs when taking equipment out of service
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting
- Status and configuration of electrical systems and switchyard activities to ensure that TSs were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of secondary containment as required by TSs
- Refueling activities, including fuel handling and 100 percent core verification
- Fatigue management

- Tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block the emergency core cooling system suction strainers, and startup and ascension to full power operation
- Identification and resolution of problems related to RFO activities

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 8 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant structures, systems, and components to assess whether test results satisfied TSs, the UFSAR, and licensee procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied.

Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- ST-9BB, Emergency diesel generator 'B' and 'D' full load test and emergency service water pump operability test, on January 11, 2017
- ST-1B, MSIV fast closure test (inservice test (IST)), on January 14, 2017
- ST-39B-X7B, Type C leak test main steam line B MSIVs (IST), (inboard MSIV, 29AOV-80B), on January 17, 2017 (PCIV)
- ST-39B-X7B, Type C leak test main steam line B MSIVs (IST), (outboard MSIV, 29AOV-86B), on January 17, 2017 (PCIV)
- ST-6M, Standby liquid control recirculation injection test (IST), on January 21, 2017
- ST-9CB, Emergency diesel generator 'B' and 'D' load sequencing test and 4KV emergency power system voltage relays instrument functional test, on February 2, 2017
- ST-2HB, Low pressure coolant injection initiation logic system 'B' and reactor pressure vessel low pressure permissive logic systems 'A' and 'B' functional test, on February 3, 2017
- ST-29F, RPT/ARI logic functional and simulated automatic actuation test, on February 7, 2017

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01 – 5 samples)

a. Inspection Scope

The inspectors reviewed Exelon's performance in assessing and controlling radiological hazards in the workplace. The inspectors used the requirements contained in 10 CFR Part 20, TSs, applicable regulatory guides (RGs), and the procedures required by TSs as criteria for determining compliance.

Radiological Hazard Assessment (1 sample)

The inspectors conducted independent radiation measurements during walkdowns of the facility and reviewed the radiological survey program, air sampling and analysis, continuous air monitor use, recent plant radiation surveys for radiological work activities, and any changes to plant operations since the last inspection to verify survey adequacy of any new radiological hazards for onsite workers or members of the public.

Instructions to Workers (1 sample)

The inspectors reviewed high radiation area work permit controls and use, and observed containers of radioactive materials and assessed whether the containers were labeled and controlled in accordance with requirements.

The inspectors reviewed several occurrences where a worker's electronic personal dosimeter alarmed. The inspectors reviewed Exelon's evaluation of the incidents, documentation in the CAP, and whether compensatory dose evaluations were conducted when appropriate. The inspectors verified follow-up investigations of actual radiological conditions for unexpected radiological hazards were performed.

Radiological Hazards Control and Work Coverage (1 sample)

The inspectors evaluated in-plant radiological conditions and performed independent radiation measurements during facility walkdowns and observation of radiological work activities. The inspectors assessed whether posted surveys; radiation work permits; worker radiological briefings and radiation protection job coverage; the use of continuous air monitoring, air sampling, and engineering controls; and dosimetry monitoring were consistent with the present conditions. The inspectors examined the control of highly activated or contaminated materials stored within the spent fuel pool and the posting and physical controls for selected high radiation areas, locked high radiation areas, and very high radiation areas to verify conformance with the occupational performance indicator.

Risk-Significant High Radiation Area and Very High Radiation Area Controls (1 sample)

The inspectors reviewed the procedures and controls for high radiation areas, very high radiation areas, and radiological transient areas in the plant.

Radiation Worker Performance and Radiation Protection Technician Proficiency
(1 sample)

The inspectors evaluated radiation worker performance with respect to radiation protection work requirements. The inspectors evaluated radiation protection technicians in performance of radiation surveys and in providing radiological job coverage.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03 – 1 sample)

a. Inspection Scope

The inspectors reviewed the control of in-plant airborne radioactivity and the use of respiratory protection devices in these areas. The inspectors used the requirements in 10 CFR Part 20, RG 8.15, RG 8.25, NUREG/CR-0041, TSs, and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed the UFSAR to identify ventilation and radiation monitoring systems associated with airborne radioactivity controls and respiratory protection equipment staged for emergency use. The inspectors also reviewed respiratory protection program procedures and current performance indicators for unintended internal exposure incidents.

Use of Respiratory Protection Devices (1 sample)

The inspectors reviewed the adequacy of Exelon's use of respiratory protection devices in the plant to include applicable ALARA [as low as is reasonably achievable] evaluations, respiratory protection device certification, respiratory equipment storage, air quality testing records, and individual qualification records.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04 – 1 sample)

a. Inspection Scope

The inspectors reviewed the monitoring, assessment, and reporting of occupational dose. The inspectors used the requirements in 10 CFR Part 20, RGs, TSs, and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed radiation protection program audits, National Voluntary Laboratory Accreditation Program dosimetry testing reports, and procedures associated with dosimetry operations.

Source Term Characterization (1 sample)

The inspectors reviewed the plant radiation characterization (including gamma, beta, alpha, and neutron) being monitored. The inspectors verified the use of scaling factors to account for hard-to-detect radionuclides in internal dose assessments.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Power Changes (1 sample)

a. Inspection Scope

The inspectors reviewed the licensee's submittals for the Unplanned Power Changes performance indicator for the period of January 1, 2016, through December 31, 2016. To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7. The inspectors reviewed the licensee's operator narrative logs, maintenance planning schedules, CRs, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.2 Safety System Functional Failures (1 sample)

a. Inspection Scope

The inspectors reviewed the licensee's submittals for the safety system functional failures performance indicator for the period of January 1, 2016, through December 31, 2016. To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in NEI Document 99-02, Revision 7; and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." The inspectors reviewed the licensee's operator narrative logs, operability assessments, CRs, event reports and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 2 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, “Problem Identification and Resolution,” the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify the licensee entered issues into the CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP and periodically attended CR screening meetings. The inspectors also confirmed, on a sampling basis, that, as applicable, for identified defects and non-conformances, the licensee performed an evaluation in accordance with 10 CFR Part 21.

b. Findings

No findings were identified.

.2 Annual Sample: Control Rod Unexpected Insertion to the Full in Position

a. Inspection Scope

The inspectors performed an in-depth review of the licensee's evaluation and corrective actions associated with CR-JAF-2016-01483 for the unexpected insertion of control rod 18-35 to the full in position. The CR documented that on April 24, 2016, while performing control rod operability testing for fully withdrawn control rods, control rod 18-35 drifted in from position 48 to 00. Operators entered Abnormal Operating Procedure 27 for a control rod drift and lowered power, ultimately to approximately 60 percent. Maintenance replaced all four directional control valves (DCVs) with new valves and finger filters on HCU 18-35. Following replacement of the DCVs, control rod 18-35 was stroke timed per surveillance test ST-20N and inserted to position 46 and withdrawn to position 48 (full out) with no abnormalities.

The inspectors assessed the licensee's problem identification threshold, problem analysis, extent of condition reviews, compensatory actions, and the prioritization and timeliness of corrective actions to determine whether the licensee was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of the licensee's CAP and 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action.” In addition, the inspectors reviewed documentation associated with this issue, including the apparent cause evaluation and DCV replacement schedules, and interviewed engineering personnel to assess the effectiveness of the implemented corrective actions to resolve the issue.

b. Findings and Observations

No findings were identified.

The inspectors determined that the licensee took appropriate actions to identify the direct and apparent causes of the issue. The direct cause of the issue was that HCU 18-35 DCVs failed to fully close when de-energized. The apparent cause was determined to be the use of a performance-based preventive maintenance (PM) strategy vice a time-based PM replacement for the DCVs. This resulted in a condition that allowed a latent equipment issue (age-related degradation) to exist that would have been replaced under a time-based PM strategy, resulting in the direct cause of the HCU 18-35 DCVs failing to fully close when de-energized. The licensee replaced all four DCVs with new valves and finger filters on HCU 18-35 and stroked control rod 18-35 in a timely manner.

The licensee also performed an extent of condition review for the other control rods in which the HCU contained DCVs that are greater than 20 years old. The licensee initiated a corrective action to replace all DCVs greater than 20 years old by RFO 23. During RFO 22, the licensee replaced 149 DCVs. There are approximately 244 DCVs that will need to be replaced by the end of RFO 23.

The inspectors determined the licensee's overall response to the issue was commensurate with its safety significance, was timely, and the corrective actions taken and planned were reasonable. Although there was an industry recommendation to switch to a time-based program for DCV replacement, there was not a reasonable timeframe to replace the DCVs that were older than 20 years before this failure occurred. Therefore, there was no performance deficiency since the failure was not reasonably foreseeable and preventable.

.3 Annual Sample: Deferred Corrective Action Recovery

a. Inspection Scope

The inspectors performed a review of the licensee's processes used to recover corrective action items, including deferred corrective maintenance and permanent modifications, following the decision not to permanently shut down FitzPatrick in January 2017. In addition to confirming the adequacy of the processes used, this inspection was performed to identify any risk significant systems significantly affected by deferrals to help inform future NRC inspections.

The inspectors reviewed documentation associated with this issue and interviewed performance improvement, maintenance, work planning, and engineering personnel to assess the effectiveness of the implemented processes.

b. Findings and Observations

No findings were identified.

The inspectors determined that the licensee took appropriate actions to recover corrective action items following the decision not to permanently shut down FitzPatrick. After Entergy announced the plan to decommission the plant, various corrective actions, maintenance activities and surveillances were reviewed to determine whether they

should continue to be performed or should be deferred or rescheduled until after the permanent shutdown date and ultimately not performed. The licensee had determined the list of systems which would be required during various phases of decommissioning to base their scheduling decisions on. Approximately twenty adverse condition corrective actions were approved for extension past the permanent shutdown date. Following the decision to continue plant operation, these items were reassessed for scheduling. Approximately half of the items have been completed to date. The inspectors determined the remaining items were appropriately scheduled commensurate with their safety significance.

Surveillances and PM tasks were not cancelled or extended past their late dates. The licensee is working to reestablish more ideal PM scheduling to get back into their performance indicator target without the use of deep grace (close to late date) periods for completion.

Permanent modifications were captured in the CAP if required to correct an adverse condition. System improvement modifications remained listed in the system health reports, so no process was required to recover them.

The inspectors reviewed the current list of corrective maintenance and key system health work orders. No risk significant systems were adversely affected by deferrals. The inspectors determined the licensee's process to recover corrective action items following the decision not to decommission the plant was appropriate.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 1 sample)

(Closed) Licensee Event Report (LER) 05000333/2016-003-00: Simultaneous Opening of Secondary Containment Airlock Doors

On June 7, 2016, personnel inside and outside the secondary containment simultaneously opened both doors to the north reactor building, 272 foot elevation, secondary containment airlock. TS Surveillance Requirement (SR) 3.6.4.1.3 requires that one secondary containment access door in each access opening is closed at all times. Both parties were aware of this requirement, and both withdrew and closed their respective doors within a period of approximately two seconds. However, during the period that both doors were simultaneously open, TS SR 3.6.4.1.3 was not satisfied, and therefore, secondary containment was inoperable per TS Limiting Condition for Operation 3.6.4.1. The limiting condition for operation action statement requires that secondary containment be restored to operable status within four hours. This condition was met once one of the secondary containment access doors was closed. However, because secondary containment is a single train system, this occurrence was reportable under 10 CFR 50.72 as a condition that at the time of discovery would have prevented the fulfillment of the secondary containment safety function, even though the condition existed for less than the TS allowed outage time.

The inspectors noted that the subject secondary containment access is equipped with three sets of green and red position indication lights, one set on each entrance to the airlock and the third set inside the airlock. All the green lights are energized if both airlock doors are closed. However, if either door is opened, the green lights extinguish and all the red lights are energized. This scheme functions adequately to alert an individual preparing to enter an airlock that another individual is already in the process of

entering from the other side. However, in the event that both doors are operated simultaneously, the indications for both individuals are as expected for a single door being opened, and neither recognizes a problem exists until they are positioned to see the other open door (at which point, it is too late). Therefore, the inspectors determined that this event was not due to a human performance deficiency. Given that secondary containment differential pressure remained within specification, along with the short duration of the event, the inspectors determined that secondary containment had remained capable of performing its design function throughout the event. Additionally, the issue was reported in a timely manner in accordance with the requirements of 10 CFR 50.72, so it did not constitute a traditional enforcement issue. Because the failure to comply with TS SR 3.6.4.1.3 was corrected within the allowed outage time, no violation of regulatory requirements occurred. Cameras and monitors have since been installed on each side of the secondary containment airlock in question, enabling individuals to verify that the opposing door will not be simultaneously opened. This LER is closed.

4OA5 Other Activities

Temporary Instruction (TI) 2515/192, "Inspection of the Licensee's Interim Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems"

a. Inspection Scope

The objective of this performance-based TI is to verify implementation of interim compensatory measures associated with an open phase condition (OPC) design vulnerability in electric power system for operating reactors. The inspectors conducted an inspection to determine if FitzPatrick had implemented the following interim compensatory measures. These compensatory measures are to remain in place until permanent automatic detection and protection schemes are installed and declared operable for OPC design vulnerability. The inspectors verified the following:

- FitzPatrick had identified and discussed with plant staff the lessons learned from the OPC events at the U.S. operating plants including the Byron Station OPC event and its consequences. This includes conducting operator training for promptly diagnosing, recognizing consequences, and responding to an OPC event.
- FitzPatrick had updated plant operating procedures to help operators promptly diagnose and respond to OPC events on offsite power sources credited for safe shutdown of the plant.
- FitzPatrick had established and continues to implement periodic walkdown activities to inspect switchyard equipment such as insulators, disconnect switches, and transmission line and transformer connections associated with the offsite power circuits to detect a visible OPC.
- FitzPatrick had ensured that routine maintenance and testing activities on switchyard components have been implemented and maintained. As part of the maintenance and testing activities, FitzPatrick assessed and managed plant risk in accordance with 10 CFR 50.65(a)(4) requirements.

b. Findings and Observations

No findings of significance were identified. The inspectors verified the criteria were met. Information gained from this TI have been provided to the program office for further review.

4OA6 Meetings, Including Exit

On April 19, 2017, the inspectors presented the inspection results to Mr. Joseph Pacher, Site Vice President, and other members of the FitzPatrick staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION**KEY POINTS OF CONTACT**Licensee Personnel

B. Sullivan, Site Vice President
 T. Peter, General Manager, Plant Operations
 C. Adner, Director, Manager Operations and Regulatory and Performance Improvement
 D. Bittinger, Manager, Design and Programs Engineering
 W. Drews, Manager, Regulatory Assurance
 K. Habayeb, Supervisor, Engineering
 R. Heath, Manager, Radiation Protection
 J. Jones, Manager, Emergency Planning
 D. Poulin, Director, Engineering
 T. Redfearn, Manager, Security
 M. Reno, Manager, Training

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATEDOpened

| | | |
|---------------------|-----|--|
| 05000333/2017001-01 | URI | Drywell Moisture Barrier Description in License Renewal Application (Section 1R08) |
|---------------------|-----|--|

Closed

| | | |
|----------------------|-----|---|
| 05000333/2016-003-00 | LER | Concurrent Opening of Reactor Building Airlock Doors (Section 4OA3) |
| 05000333/TI 2515/192 | TI | Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems (Section 4OA5) |

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures

AOP-19A, Loss of Switchgear L16, Revision 5
ODSO-4, Shift Turnover and Log Keeping, Revision 118
OP-13, RHR System, Revision 98
OP-13D, RHR – Shutdown Cooling, Revision 30
OP-14, Core Spray System, Revision 37

Condition Report

CR-JAF-2017-0396

Drawings

FM-20A, Flow Diagram RHR System 10, Revision 72
FM-20B, Flow Diagram RHR System 10, Revision 62
FM-23A, Flow Diagram Core Spray System 14, Revision 49

Section 1R05: Fire Protection

Procedures

JAF-RPT-04-00478, JAF Fire Hazards Analysis, Revision 2
JAF-RPT-04-00478, JAF Fire Hazards Analysis, Revision 2
PFP-PWR12, Relay Room Elevation 286' Fire Area VII/Fire Zone RR-1, Revision 5
PFP-PWR20, Reactor Building - East / Elevation 272' Fire Area/Zone IX/RB-1A, Revision 5
PFP-PWR21, Reactor Building - West / Elevation 272' Fire Area/Zone X/RB-1B, Revision 5
PFP-PWR24, Reactor Building - East, Elevation 300' Fire Area/Fire Zone – 8/RB-1C, 9RB-1A, Revision 5
PFP-PWR25, Reactor Building - West, Elevation 300' Fire Area/Fire Zone – X/RB-1B, Revision 3
PFP-PWR45, Turbine Building, Elevation 272', Fire Area/Zone IE/TB-1, Revision 06
PFP-PWR46, Turbine Building, Elevation 272', Fire Area/Zone IE/TB-1, OR-2, Revision 04
PFP-PWR48, Turbine Building, Elevation 300', Fire Area/Zone IE/TB-1, Revision 04

Drawings

FPSSK-2, Fire Area/Zone Arrangement Plan EI 272'-0", Revision 3
FPSSK-3, Fire Area/Zone Arrangement Plan EI 300'-0", Revision 3

Section 1R08: Inservice Inspection

Procedures

CEP-NDE-0505, Ultrasonic Thickness Examination, Revision 4
CEP-NDE-0901, VT-1 Examination, Revision 4
PQR 015, Manual Gas Tungsten Arc Welding (GTAW), Revision 1
PQR 024, Manual Gas Tungsten and Shielded Metal Arc Welding (GTAW and SMAW), Revision 1
PRO-ISI-IVVI-0001-GFIT1, Procedure for In-Vessel Visual Inspection (IVVI) of the James A. Fitzpatrick BWR 4 RPV Internals, Revision 2
SEP-ISI-007, ASME Section XI Fourth 10-Year Interval Inservice Inspection Program Plan, Revision 7
SI-UT-130, Procedure for the Phased Array Ultrasonic Examination of Dissimilar Metal Welds, Revision 3

WPS-CS-1/1-A, Welding Procedure Specification, Revision 0

WPS-CS-1/1-B, Welding Procedure Specification, Revision 0

Condition Reports

| | | |
|-------------------|-------------------|-------------------|
| CR-JAF-2014-04909 | CR-JAF-2014-06304 | CR-JAF-2014-06884 |
| CR-JAF-2014-07232 | CR-JAF-2015-01099 | CR-JAF-2015-03000 |
| CR-JAF-2017-00480 | CR-JAF-2017-00667 | CR-JAF-2017-00706 |
| CR-JAF-2017-00812 | CR-JAF-2017-00822 | CR-JAF-2017-00906 |
| CR-JAF-2017-00910 | | |

Work Order

0039397101, Repair Linear Flaw in ISI Weld 24-29-626A, January 26, 2017

NDE Summary Reports

3036-NTHBIR, Closure Head Vent Nozzle IR, January 22, 2017
 ISI-VT-16-012, IWE General Exam RB 272-300, January 23, 2017
 ISI-VT-16-013, IWE General Exam RB 300-326, January 23, 2017
 ISI-VT-17-017, VT-3 Pressure Retaining Bolting, January 26, 2017
 ISI-VT-17-023, VT-3 Torus Supports, January 23, 2017
 JAF-RHR-130, FitzPatrick DMW RHR 24-10-130, January 29, 2017
 JAF-RHR-142, FitzPatrick DMW RHR 24-10-142, January 30, 2017
 JAF-RHR-144, FitzPatrick DMW RHR 24-10-144, January 30, 2017

Miscellaneous

J.A. FitzPatrick RO21 Final Report, Fall 2014, Inservice Inspection – FAC, Volume 1
 LO-JAFLO-2016-00035, Pre-NRC ISI Snapshot Assessment, December 5, 2016
 OE-NOE-2015-00096-CA-12, NRC Information Notice 2015-04, Fatigue in Branch Connection Welds, Revision 0
 OE-NOE-2016-00145 CA#00012, NRC-RIS-2016-07 Containment Shell or Liner Moisture Barrier Inspection, Revision 0
 WPQ-EN-0229-08536, Welding Performance Qualification, December 22, 2016

Section 1R11: Licensed Operator Regualification Program

Procedures

OP-65, Startup and Shutdown Procedure, Revision 121
 ST-5C, IRM-APRM Instrument Range Overlap Check, completed January 14, 2017

Section 1R12: Maintenance Effectiveness

Procedures

EN-DC-205, Maintenance Rule Monitoring, Revision 6
 EN-DC-206, Maintenance Rule (a)(1) Process, Revision 3

Condition Reports

| | | |
|-------------------|-------------------|-------------------|
| CR-JAF-2014-4381 | CR-JAF-2015-3924* | CR-JAF-2016-0263* |
| CR-JAF-2016-0324* | CR-JAF-2016-0610 | CR-JAF-2016-1671* |
| CR-JAF-2016-2356 | CR-JAF-2016-2411* | CR-JAF-2016-3831* |
| CR-JAF-2016-4815* | CR-JAF-2017-0309* | CR-JAF-2017-0310* |
| CR-JAF-2017-0501* | CR-JAF-2017-0768 | CR-JAF-2017-0886* |
| CR-JAF-2017-0920* | CR-JAF-2017-0942 | CR-JAF-2017-1108* |
| CR-JAF-2017-2033 | | |

*Maintenance Rule Functional Failure Evaluations also reviewed for Condition Reports

Work Orders

451680
466890

Miscellaneous

JAF-RPT-MST-02480, Maintenance Rule Basis Document System 029 Main Steam, Revision 9
JAF-RPT-MULTI-02294, Maintenance Rule Basis Document for Service Water Systems
including System 10 (RHRSW), 46 (Normal SW), and 46-ESW (Emergency SW),
Revision 12
Maintenance Rule (a)(1) Action Plan for System 29, February 6, 2017
System Health Report for Main Steam System 3Q-2016

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

AP-10.09, Outage Risk Assessment, Revision 35
AP-10.10, On-Line Risk Assessment, Revision 9
EN-WM-104, On-Line Risk Assessment, Revision 12
ODSO-4, Shift Turnover and Log Keeping, Revision 118
OP-43C, LPCI Independent Power Supply System, Revision 23

Condition Reports (* NRC Identified)

CR-JAF-2017-0465*
CR-JAF-2016-4882

Miscellaneous

R22 Revision 1 Risk Assessment Based on Schedule, December 29, 2016

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

EN-NE-G-0032, BWR Primary System Loose Parts Analysis Considerations, Revision 1
ST-39J, Leak Testing of RHR and Core Spray Testable Check Valves (IST), Revision 18

Condition Reports

| | | |
|------------------|------------------|------------------|
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| CR-JAF-2017-0812 | CR-JAF-2017-0848 | CR-JAF-2017-0851 |
| CR-JAF-2017-0997 | | |

Work Orders

00396857
52606738

Drawing

FM-20A, Flow Diagram RHR System 10, Revision 47

Miscellaneous

ALION-CAL-SI-9389-002, Design Pressure for Strainer "Clamshell" Cover Modules, Revision 2
EC 69400
EC 69507, Temporary RHR suction strainer shells
EC 69558, Enlarge alignment slot on fuel support casting for cell location 38-39 to allow for FSC
assembly in proper orientation over guide pin in core plate

EC 69571
JAF-194295-RP01, RHR Strainer Module Repair Report, Revision 0

Section 1R18: Plant Modifications

Procedures

EN-DC-117, Post Modification Testing and Special Instructions, Revision 8
ST-2XB, RHR Service Water Loop B Quarterly Operability Test (IST), Revision 13
ST-41D, Remote Valve Position Indication Verification Online (IST), Revision 20

Condition Report (* NRC identified)
2017-2018*

Work Order
00327815

Drawings

FM-20B, Flow Diagram Residual Heat Removal System 10, Revision 72
FP-37E, Service Water Piping Reactor Building Sh-5, Revision 22
FP-37F, Service Water Piping Reactor Building Sh-6, Revision 13

Miscellaneous

EC 66231, Provide Isolation between RHRSW and Secondary Containment for Work on
10MOV-89A
EC 66088, Provide Isolation between RHRSW and Secondary Containment for Work on
10MOV-89B
Engineering Change 67365, 10MOV-89A/B Replacement, Revision 0

Section 1R19: Post-Maintenance Testing

Procedures

EN-WM-107, Post Maintenance Testing, Revision 5
ESP-68.001, Leak Rate Test of Automatic Depressurization System (ADS) Pneumatic Supply
Check Valves, Revision 5
IMP-02-184.8, Recirculating MG Set Voltage Regulator Tuning**, completed 2/27/17
MP-003.11, HCU Directional Control Valves 03SOV-120 through 123, Revision 18
RAP-7.3.39, Channel-Control Blade Interference Monitoring, completed 2/9/17
ST-2AL, RHR Loop A Quarterly Operability Test (IST), Revision 36
ST-2AM, RHR Loop B Quarterly Operability Test (IST), completed 2/22/17
ST-6HB, Standby Liquid Control B Side Quarterly Operability Test (IST), completed 1/21/17
ST-20N, Control Rod Exercise/Timing/Stall Flow Test, completed 2/4/17
ST-22A, ADS Simulated Automatic Actuation Test, Revision 24
ST-22K, Manual Safety Relief Valve Operation System Test (IST), Revision 5
ST-39B, Type B and C LLRT of Containment Penetrations (IST), Revision 36
ST-39B-X7C, Type C Leak Test Main Steam Line C MSIVs (IST), Revision 15
ST-39H, RPV System Leakage Test and Control Rod Drive Class 2 Piping Inservice Test
(ISI)**, Revision 34
ST-43G, Remote Shutdown Panel 25ASP-5 Component Operation and Isolation Verification,
Revision 6

Condition Reports

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CR-JAF-2017-1676 CR-JAF-2017-1678 CR-JAF-2017-1684 CR-JAF-2017-1686
 CR-JAF-2017-1689 CR-JAF-2017-1694

Work Orders

00341278 00396857 00403664 00453213 00456762 00457224
 00465534 00466391 00466553 52607951

Section 1R20: Refueling and Other Outage Activities

Procedures

EN-OM-123, Fatigue Management Program, Revision 13
 ESP-65.001, Drywell Inspection, Revision 4
 ODSO-4, Shift Turnover and Log Keeping, Revision 118
 OP-9, Main Turbine, Revision 58
 OP-11A, Main Generator, Transformers and Isolated Bus Phase Cooling, Revision 52
 OP-13D, RHR-Shutdown Cooling, Revision 29
 OP-21, Emergency Service Water (ESW), Revision 38
 OP-30A, Refueling Water Level Control, Revision 18
 OP-65, Startup and Shutdown Procedure, Revision 121
 OSP-66.001, Management of Refueling Activities, Revision 8
 RAP-7.4.01, Control Rod Scram Time Evaluation**, Revision 28
 ST-2AN, RHR Loop A Monthly Operability Test, Revision 16
 ST-2AO, RHR Loop B Monthly Operability Test, Revision 16
 ST-24J, RCIC [Reactor Core Isolation Cooling] Flow Rate and Inservice Test (IST), Revision 45
 ST-26J, Heatup and Cooldown Temperature Checks, Revision 24
 TOP-416, Transferring from A RFP to B RFP While On the Low Flow Control Valve, Revision 0

Condition Reports

CR-JAF-2017-0706 CR-JAF-2017-0738 CR-JAF-2017-0812
 CR-JAF-2017-0848 CR-JAF-2017-1142 CR-JAF-2017-1146

Miscellaneous

System Window Closeout Checklist for 11SLC (1R22-0071), January 22, 2017
 System Window Closeout Checklist for 'B' RHR (R22-0022), February 2, 2017

Section 1R22: Surveillance Testing

Procedures

CEP-APJ-001, Primary Containment Leakage Rate Testing (10CFR50 Appendix J) Program Plan, Revision 3
 MST-011.11, Standby Liquid Control Explosive Valves (IST), Revision 14
 OP-25, Control Rod Drive Hydraulic System, Revision 88
 OP-22, Diesel Generator Emergency Power, Revision 61
 ST-1B, MSIV Fast Closure Test (IST), Revision 26
 ST-6M, Standby Liquid Control Recirculation, Injection Test (IST, ISI), Revision 8
 ST-6N, Reverse Closure Test of SLC Injection Line Check Valves (IST), Revision 0
 ST-9BB, EDG B and D Full Load Test and ESW Pump Operability Test, Revision 15
 ST-9CB, EDG B and D Load Sequencing Test and 4KV Emergency Power System Voltage Relays Instrument Functional Test**, Revision 3
 ST-29F, RPT/ARI Logic Functional and Simulated Automatic Actuation Test, Revision 17
 ST-39B, Type B and C LLRT of Containment Penetrations (IST), Revision 36
 ST-39B-X7B, Type C Leak Test Main Steam Line B MSIVs (IST), Revision 14

ST-43H, Circuit Breaker 10614 Remote Shutdown Operation and Isolation Verification,
Revision 11

Condition Reports

CR-JAF-2017-0310
CR-JAF-2017-0425
CR-JAF-2017-1292

Work Orders

52698422
52733249

Drawing

FM-21A, Flow Diagram Standby Liquid Control System 11, Revision 37

Miscellaneous

Updated FSAR Section 4.6, Main Steam Isolation Valves
Updated FSAR Section 8.6, Emergency AC Power System

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures

EN-RP-100, Radiation Worker Expectations, Revision 11
EN-RP-101, Access Control for Radiologically Controlled Areas, Revision 12
EN-RP-102, Radiological Control, Revision 5
EN-RP-105, Radiological Work Permits, Revision 16
EN-RP-106-01, Radiological Survey Guidelines, Revision 3
EN-RP-108, Radiation Protection Posting, Revision 18
EN-RP-121, Radioactive Material Control, Revision 13
EN-RP-141-01, Job Coverage Using Remote Monitoring Technology, Revision 6
EN-RP-152, Conduct of Radiation Protection, Revision 1

Condition Reports

| | | |
|-------------------|-------------------|-------------------|
| CR-JAF-2016-00607 | CR-JAF-2016-00650 | CR-JAF-2016-04668 |
| CR-JAF-2016-05190 | CR-JAF-2017-00627 | CR-JAF-2017-00637 |

RWPs and ALARA Plans

| RWP | ALARA Plan |
|----------|------------|
| 20170514 | 17-0514 |
| 20170609 | 17-0609 |
| 20170701 | 17-0701 |
| 20170944 | 17-0944 |

Surveys

| | | |
|---------------|---------------|---------------|
| JAF-1701-0325 | JAF-1701-0376 | JAF-1701-0397 |
| JAF-1701-0455 | JAF-1701-0495 | JAF-1701-0520 |
| JAF-1701-0532 | JAF-1701-0568 | JAF-1701-0577 |
| JAF-1701-0582 | JAF-1701-0601 | JAF-1701-0740 |
| JAF-1701-0757 | JAF-1701-0639 | JAF-1701-0659 |
| JAF-1701-0667 | JAF-1701-0698 | JAF-1701-0720 |
| JAF-1701-0721 | JAF-1701-0722 | JAF-1701-0723 |
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Miscellaneous

Air Sample 17106, 17111, 17137, 17139, 17142, 17147, 17150, 17182

Section 2RS3: In-Plant Airborne Radioactivity Control and Mitigation

Procedures

EN-RP-131, Air Sampling, Revision 15

Section 4OA2: Problem Identification and Resolution

Procedures

EN-LI-118, Cause Evaluation Process, Revision 22

Condition Reports

CR-JAF-2010-08458
CR-JAF-2016-01483

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

Condition Reports

CR-JAF-2015-4146
CR-JAF-2016-1996

Section 4OA5: Other Activities

Procedures

AOP-72, 115 KV Grid Loss, Instability, or Degradation, Revision 11
OP-44A, 115 KV System, Revision 22

Condition Reports

CR-HQN-2012-0847
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CR-JAF-2005-5180

Work Orders

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Miscellaneous

EC 48543, Provide Open Phase Detection and Protection for 115KV Switchyard – Parent EC,
Revision 0
LER 050005333-2005-006-00, Inoperable 115 KV Line in Excess of Technical Specification
Allowed Out of Service Time

LIST OF ACRONYMS

| | |
|--------|--|
| 10 CFR | Title 10 of the <i>Code of Federal Regulations</i> |
| ASME | American Society of Mechanical Engineers |
| BPV | boiler and pressure vessel |
| CAP | corrective action program |
| CR | condition report |
| DCV | directional control valve |
| EC | engineering change |
| HCU | hydraulic control unit |
| IMC | Inspection Manual Chapter |
| IST | inservice test |
| IWE | International Welding Engineer |
| LER | licensee event report |
| MSIV | main steam isolation valve |
| NDE | non-destructive examination |
| NEI | Nuclear Energy Institute |
| NRC | Nuclear Regulatory Commission |
| OPC | open phase condition |
| OPDRV | operation with a potential for draining the reactor vessel |
| PM | preventive maintenance |
| RFO | refuel outage |
| RG | regulatory guide |
| RHR | residual heat removal |
| RHRSW | residual heat removal service water |
| RPV | reactor pressure vessel |
| SR | surveillance requirement |
| TI | temporary instruction |
| TS | technical specification |
| UFSAR | Updated Final Safety Analysis Report |
| URI | unresolved item |
| UT | ultrasonic testing |
| VT | visual testing |
| WO | work order |