



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

August 12, 2016

Mr. Brian Sullivan
Site Vice President
Entergy Nuclear Northeast
James A. FitzPatrick Nuclear Power Plant
P.O. Box 110
Lycoming, NY 13093

**SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT – INTEGRATED
INSPECTION REPORT 05000333/2016002**

Dear Mr. Sullivan:

On June 30, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your James A. FitzPatrick Nuclear Power Plant (FitzPatrick). The enclosed inspection report documents the inspection results which were discussed on July 27, 2016, with you and other members of your staff.

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

The inspectors documented two violations of NRC requirements, which were of very low safety significance (Green). Additionally, a licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance, and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations, consistent with Section 2.3.2.a of the NRC Enforcement Policy. If you contest any non-cited violation in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at FitzPatrick. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at FitzPatrick.

B. Sullivan

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In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the NRCs "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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

Enclosure:
Inspection Report 05000333/2016002
w/Attachment: Supplementary Information

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B. Sullivan

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U.S. NUCLEAR REGULATORY COMMISSION**REGION I**

Docket No. 50-333

License No. DPR-59

Report No. 05000333/2016002

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: James A. FitzPatrick Nuclear Power Plant

Location: Scriba, NY

Dates: April 1, 2016, through June 30, 2016

Inspectors: E. Knutson, Senior Resident Inspector
B. Sienel, Resident Inspector
T. Fish, Senior Operator Licensing Examiner
B. Fuller, Senior Operator Licensing Examiner
J. Furia, Senior Health Physicist
E. Miller, Resident Inspector
T. O'Hara, Reactor Engineer
R. Rolph, Health Physicist
J. Schussler, Project Engineer

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

Enclosure

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SUMMARY

Inspection Report 05000333/2016002; 04/01/2016 – 06/30/2016; James A. FitzPatrick Nuclear Power Plant (FitzPatrick); Radiological Hazard Assessment and Exposure Controls and Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. The inspectors identified two non-cited violations (NCVs) of very low safety significance (Green). 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 April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

Cornerstone: Occupational/Public Radiation Safety

- Green. The inspectors identified a self-revealing Green NCV of Technical Specification (TS) 5.7.1, "High Radiation Area." Specifically, on January 24 and 25, 2016, operations personnel failed to notify the Radiation Protection (RP) department and non-licensed operators in the field when operating plant equipment that created high radiation areas (HRAs). These areas therefore were not surveyed by RP to determine dose rates prior to non-licensed operators entering the areas. Personnel entry into HRAs without knowledge of the current dose rates is a performance deficiency. In both instances, RP evaluated the operators' dose, validated the dosimeter alarms, surveyed both areas in response to the dose rate alarms, and reposted the areas as HRAs. Entergy documented the events in condition reports (CR)-JAF-2016-00269 and CR-JAF-2016-00369

The finding was more than minor because it resulted in the unintended exposure of two workers and affected the Occupational Radiation Safety cornerstone attribute of program and process associated with exposure/contamination controls and if left uncorrected could result in more significant exposures. The finding was determined to be of very low safety significance (Green) because it was not related to as low as is reasonably achievable (ALARA), did not result in an overexposure or a substantial potential for overexposure, and did not compromise the licensee's ability to assess dose. A cross-cutting aspect of Human Performance, Teamwork, was associated with this finding. Specifically, licensed operators did not communicate to RP or non-licensed operators in the field when operating plant equipment that caused plant radiological conditions to change. [H.4] (Section 2RS1)

- Green. The inspectors identified a Green NCV of Title 10 of the *Code of Federal Regulations* (10 CFR) 20.1406(c) due to Entergy not conducting operations to minimize the introduction of residual radioactivity into the site. For at least the past four years, Entergy allowed leakage of the solid radwaste processing system to occur, resulting in spilled radioactive waste that accumulated and remained on the floor of the filter sludge tank room in the radwaste building. The failure to control spilled radioactive wastes is a performance deficiency. Entergy entered this issue into their corrective action program (CAP) as

CR-JAF-2016-01784 with actions to characterize the introduction of residual radioactivity and evaluate cleanup actions.

This issue is more than minor because it is associated with the program and process attribute of the Public Radiation Safety cornerstone and affected the cornerstone objective to ensure the licensee's ability to prevent inadvertent release and/or loss of control of licensed material. The finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Resolution, in that the condition was known to exist for over four years, impacted the radwaste system effectiveness to process solid radwaste, and had not been corrected. [P.3] (Section 2RS8)

Other Findings

A violation of very low safety significance that was identified by FitzPatrick was reviewed by the inspectors. Corrective actions taken or planned by FitzPatrick have been entered into FitzPatrick's CAP. This violation and corrective action tracking number are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

FitzPatrick began the inspection period at 100 percent power. On April 14, 2016, operators reduced power to 65 percent for a control rod sequence exchange and restored power to 100 percent later that day. On April 21, 2016, operators reduced reactor power to 90 percent for a control rod pattern adjustment and restored power to 100 percent. On April 24, 2016, control rod 18-35 drifted from the fully withdrawn position to fully inserted. Operators responded in accordance with AOP-27, "Control Rod Malfunction," and reduced power to approximately 60 percent using recirculation flow and control rods. After the rod had been electrically disarmed, operators increased power to approximately 90 percent using recirculation flow. The associated directional control valves were replaced, and following a power reduction to 75 percent, power was restored to 100 percent the following day. On May 11, 2016, operators reduced power to 90 percent for a control rod pattern adjustment and restored power to 100 percent. On June 3, 2016, operators reduced power to 60 percent for a control rod sequence exchange and directional control valve replacement. Power was restored to 100 percent on June 4, 2016. On June 5, 2016, operators reduced power to 87 percent for control rod testing and restored power to 100 percent. On June 9, 2016, operators reduced power to 75 percent for a control rod sequence exchange and restored power to 100 percent later that day. On June 20, 2016, operators reduced power to 85 percent due to high temperature on main transformer 71T-1B which was the result of external cooling system fouling. The cooling system was cleaned and power was restored to 100 percent later that day. On June 24, 2016, operators inserted a manual reactor scram following an electrical malfunction that resulted in the loss of one reactor water recirculation pump and impending loss of the other pump due to reduced cooling flow. At the conclusion of the inspection period, FitzPatrick remained in cold shutdown for the forced outage.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 2 samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors reviewed Entergy's preparations for the onset of seasonal high temperatures. The review focused on the turbine building ventilation system supply to the electric bays and the reactor building ventilation system supply to the residual heat removal (RHR) system in the reactor building crescents. The inspectors reviewed the updated final safety analysis report (UFSAR), TSs, control room logs, and the CAP to determine what temperatures or other seasonal weather could challenge these systems, and to ensure Entergy personnel had adequately prepared for these challenges. The inspectors reviewed station procedures including Entergy's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during hot weather conditions. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 Summer Readiness of Offsite and Alternate Alternating Current Power Systems

a. Inspection Scope

The inspectors performed a review of plant features and procedures for the operation and continued availability of the offsite and alternate alternating current (AC) power systems to evaluate readiness of the systems prior to seasonal high grid loading. The inspectors reviewed Entergy's procedures affecting these areas and the communications protocols between the transmission system operator and Entergy. This review focused on changes to the established program and material condition of the offsite and alternate AC power equipment. The inspectors assessed whether Entergy established and implemented appropriate procedures and protocols to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by interviewing the responsible system engineer, reviewing CRs and walking down portions of the offsite and AC power systems including the 115 kilovolt (kV) switchyard.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdown (71111.04 - 4 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- High pressure coolant injection system during planned maintenance on the reactor core isolation cooling (RCIC) system on April 19, 2016
- 'A' and 'C' emergency diesel generators (EDGs) due to increased risk significance while 115 kV offsite Line 3 and reserve station service transformer 71T-2 were inoperable for planned maintenance on May 4, 2016
- 'A' train of the standby gas treatment (SBGT) system during planned maintenance on the 'B' train on June 9, 2016
- 'B' train of the standby liquid control system during planned maintenance on the 'A' train on June 14, 2016

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 UFSAR, TSs, CRs, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors 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 Entergy staff had properly identified equipment issues and entered them into the 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 Entergy 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.

- East and west electric bays, fire area/zone II/SW-2 and IC/SW-1, on May 2, 2016
- 'A' train EDG and switchgear rooms, fire area/zones V/EG-1, EG-2, and EG-5, on May 5, 2016
- 'B' train EDG and switchgear rooms, fire area/zones VI/EG-3, EG-4, and EG-6, on May 5, 2016
- West cable tunnel, fire area/zone IC/CT-1, on May 9, 2016
- Reactor building west crescent area, fire area/zone XVIII/RB-1W, on May 24, 2016

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the CAP to determine if Entergy staff identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors focused on the RCIC system in the west crescent to verify the adequacy of floor and water penetration seals, level alarms, common drain lines, and flood barriers.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance

.1 Quarterly Review of Licensed Operator Requalification Testing and Training
(71111.11Q – 1 sample)

a. Inspection Scope

The inspectors observed licensed operator simulator training on May 17, 2016, which included a 4160 volt distribution system transient that caused a loss of the 'B' reactor water recirculation pump and emergency bus 10600, multiple rod drifts that led operators to insert a manual scram, and failure of control rods to insert that, along with a loss of all high pressure injection, that led operators to emergency depressurize the reactor. 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. Additionally, the inspectors assessed the ability of the 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
(71111.11Q – 1 sample)

a. Inspection Scope

On April 14, 2016, operators performed a power reduction to approximately 65 percent to facilitate maintenance on two hydraulic control units and perform a control rod sequence exchange. The inspectors observed portions of the power decrease, including reactivity manipulations using control rods and the reactor water recirculating system. 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.

.3 Licensed Operator Requalification (71111.11B - 1 sample)

a. Inspection Scope

The following inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10, and Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program."

Examination Results

On June 9, 2016, the results of the annual operating tests were reviewed in-office to determine if pass/fail rates were consistent with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10, and IMC 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process." The review verified that the failure rate (individual or crew) did not exceed 20 percent.

- The overall individual operator failure rate was 0.0 percent.
- The overall crew failure rate was 0.0 percent.

Written Examination Quality

The inspectors reviewed four written examinations administered during the 2015 examination cycle for qualitative and quantitative attributes as specified in Appendix B of Attachment 71111.11B, "Licensed Operator Requalification."

Operating Test Quality

Ten job performance measures (JPMs) and four dynamic scenarios were reviewed for qualitative and quantitative attributes as specified in Appendix C of 71111.11B, "Licensed Operator Requalification Program."

Licensee Administration of Operating Tests

The dynamic simulator exams and JPMs administered during the week of May 2, 2016, were observed. These observations included facility evaluations of Shift Crew D during two dynamic simulator exams and individual performance of five JPMs.

Examination Security

The inspectors assessed the facility staff's handling of exam material. The inspectors also checked JPMs, scenarios, and written examinations for excessive overlap of test items from week to week.

Remedial Training and Re-Examinations

The remediation plans for three individual failures from the 2015 requalification exams were reviewed to assess the effectiveness of the remedial training.

Conformance with Operator License Conditions

Medical records for six license holders were reviewed to assess conformance with license conditions.

Proficiency watch standing records were reviewed. The reactivation plans for license holders were reviewed to assess the effectiveness of the reactivation process.

Simulator Performance

Simulator performance and fidelity was reviewed for conformance to the reference plant control room. A sample of simulator deficiency reports was also reviewed to ensure facility staff addressed identified modeling problems. Simulator test documentation was also reviewed.

Problem Identification and Resolution

A review was conducted of recent operating history documentation found in inspection reports, Entergy's CAP, and the most recent NRC plant issues matrix. The inspectors also reviewed specific events from Entergy's CAP which indicated possible training deficiencies, to verify that they had been appropriately addressed. The NRC resident inspectors were also consulted for insights regarding licensed operators' performance.

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, or component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, and maintenance rule basis documents to ensure that Entergy staff was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by Entergy staff was reasonable. For SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that Entergy staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Main steam isolation valves
- RCIC

b. Findings

No findings were identified.

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

The inspectors reviewed maintenance activities to verify that the appropriate risk assessments were performed prior to removing equipment for work. The inspectors reviewed whether risk assessments were performed as required by 10 CFR 50.65(a)(4), and were accurate and complete. When emergent work was performed, the inspectors reviewed whether plant risk was promptly reassessed and managed. The inspectors also walked down selected areas of the plant which became more risk significant because of the maintenance activities to ensure they were appropriately controlled to maintain the expected risk condition. The reviews focused on the following activities:

- Planned maintenance followed by emergent maintenance on the RCIC system the week of April 18, 2016
- Planned three-day chemical flush of the 'A' emergency service water (ESW) system and emergent maintenance to troubleshoot a control rod that drifted from fully withdrawn to fully inserted and to repair two leaks in the 'A' ESW system the week of April 25, 2016
- Planned maintenance on the 'B' battery room ventilation system and 115 kV offsite line 3 and reserve station service transformer 71T-2, and emergent maintenance to identify and correct a ground on the 'B' battery system the week of May 2, 2016
- Planned maintenance on the 'B' ESW system and emergent unavailability of the 'B' EDG the week of May 9, 2016
- Planned maintenance on the 'A' SBT system, a planned downpower for a control rod sequence exchange, and emergent unavailability of the 'B' EDG the week of June 6, 2016

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:

- CR-JAF-2016-01413 concerning the operability of the three 3-stage safety/relief valves (SRVs) installed in the automatic depressurization system considering recent operating experience concerning operationally induced mechanical issues with the same type of valves at another U.S. boiling water reactor, on May 2, 2016
- CR-JAF-2016-01583 concerning the impact on operability of reserve station service transformer 71T-2, and the potential for an undetected overcurrent condition, when 10 amp fuses were installed in a circuit where 1 amp fuses were required, on May 17, 2016
- CR-JAF-2016-01595 concerning the impact on functionality of slow opening time for 115 kV Line 3 input breaker 71BKR-10022 to reserve station service transformer 71T-2 following breaker overhaul, on May 17, 2016

- CR-JAF-2016-01766 concerning operability of the 'A' EDG when oil level was not visible in the governor sight glass during operation, on May 18, 2016
- CR-JAF-2016-01846 concerning 'A' ESW pump test valve, 46MOV-102A, open contactor pickup voltage being found out-of-specification high during testing, and the effect of this condition on valve operability during a degraded voltage condition, on May 26, 2016

The inspectors selected these issues based on the risk significance of the associated components and systems. 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 Entergy staff's evaluations to determine whether the components or systems were operable. 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 Entergy staff. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 - 7 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Work order (WO) 52553062 to perform preventive maintenance on the RCIC turbine and pump lube oil on April 19, 2016
- WO 00444304 to replace directional control valves on control rod 18-35 on April 24, 2016
- WO 52391087 to replace 'C' EDG fuel oil transfer pump 93P1-C1 on May 19, 2016
- WO 00446350 to change the oil in the 'A' EDG governor on May 20, 2016
- WO 52635045 to inspect and clean the 'A' RHR service water pump strainer 2 on May 24, 2016
- WO 00444095 to replace the 'B' EDG jacket water expansion tank hoses on May 31, 2016
- WO 00445688 to replace 3-stage SRVs 02RV-71E, 02RV-71F, and 02RV-71C with 2-stage valves on June 30, 2016

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 - partial sample)a. Inspection Scope

The inspectors monitored the station's work schedule and outage risk management for the forced outage that began on June 24, 2016. The inspectors reviewed FitzPatrick staff'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 activities:

- Configuration management, including maintenance of defense-in-depth, to maintain the key safety functions and compliance with the applicable TSs when taking equipment out of service
- Implementation of clearance activities and confirmation that equipment was appropriately configured to safely support the associated work or testing
- Configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication
- Status and configuration of electrical systems and switchyard activities to ensure that TSs were met
- Monitoring of decay heat removal operations
- Activities that impacted the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory additions
- Activities that could affect reactivity
- Maintenance of secondary containment as required by TSs
- Tracking of startup prerequisites and walkdown of the drywell to verify that debris had not been left which could block the emergency core cooling system suction strainers
- Identification and resolution of problems related to outage activities

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 - 5 samples)a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and station 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-9BA, “EDG A and C Full Load Test and ESW Pump Operability Test,” on April 18, 2016
- ISP-49, “Reactor Water Clean-Up Area High Temperature Instrument Functional Test/Calibration,” on May 19, 2016
- ST-2AL, “RHR Loop A Quarterly Operability Inservice Test,” on May 23, 2016
- ISP-95B, “Post Accident Containment High-Range Radiation Monitor B Functional Test/Calibration,” on June 6, 2016
- ST-3PA, “Core Spray Loop A Quarterly Operability Inservice Test,” on June 13, 2016

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 - 1 sample)

Training Observation

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on May 17, 2016, which required emergency plan implementation by an operations crew. Entergy staff planned for this evolution to be evaluated and included in performance indicator (PI) data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors’ activities was to note any weaknesses and deficiencies in the crew’s performance and ensure that Entergy evaluators noted the same issues and entered them into the CAP.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational/Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01 – 7 samples)

a. Inspection Scope

The inspectors reviewed Entergy’s performance in assessing and controlling radiological hazards in the workplace. The inspectors used the requirements contained in

10 CFR 20, TSs, applicable regulatory guides (RGs), and the procedures required by TSs as criteria for determining compliance.

Instructions to Workers

The inspectors reviewed HRA work permit controls and use, 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 Entergy's evaluation of the incidents, documentation in the CAP, and whether compensatory dose evaluations were conducted when appropriate. The inspectors verified that follow-up investigations of actual radiological conditions for unexpected radiological hazards were performed.

Radiological Hazard Assessment

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.

Contamination and Radioactive Material Control

The inspectors observed the monitoring of potentially contaminated material leaving the radiological controlled area and inspected the methods and radiation monitoring instrumentation used for control, survey, and release of that material. The inspectors selected several sealed sources from inventory records and assessed whether the sources were accounted for and were tested for loose surface contamination. The inspectors evaluated whether any recent transactions involving nationally tracked sources were reported in accordance with requirements.

Radiological Hazards Control and Work Coverage

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 RP 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 HRAs, locked HRAs, and very high radiation areas (VHRAs) to verify conformance with the occupational PI.

Risk-Significant HRA and VHRA Controls

The inspectors reviewed the procedures and controls for HRAs, VHRAs, and radiological transient areas in the plant.

Radiation Worker Performance and Radiation Protection Technician Proficiency

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

Problem Identification and Resolution

The inspectors evaluated whether problems associated with radiation monitoring and exposure control (including operating experience) were identified at an appropriate threshold and properly addressed in the CAP.

b. Findings

Introduction. The inspectors identified two examples of a self-revealing Green NCV of TS 5.7.1, "High Radiation Area." Entergy operations personnel failed to notify the RP department and non-licensed operators in the field when operating certain plant equipment, which created HRAs. These areas therefore were not surveyed by RP to determine dose rates prior to non-licensed operators entering the areas. Personnel entry into HRAs without knowledge of the current dose rates is a performance deficiency.

Description. On January 23, 2016, Entergy conducted a plant shutdown due to frazil ice in the intake. On January 24, 2016, an operator was preparing the 'A' shutdown cooling system for start-up in the crescent area of the reactor building by venting the pump. RP surveyed the area to determine the dose rates and briefed the operator for that task. The operator exited the crescent and performed other preparations at the drywell entry. The operator exited the drywell entry and the control room placed the 'A' RHR pump in the shutdown cooling mode of operation. Operators failed to notify RP prior to starting the RHR pump. As stated in the precautions section of operations procedure OP-13D, "RHR Shutdown Cooling," Revision 28, Section C.2.1, RP shall be notified before:

- RHR system piping is drained
- RHR system is started in any mode of operation, unless an emergency exists

Starting the shutdown cooling pump caused the area dose rates to increase. When the operator returned to the crescent area to demobilize hoses used for venting, he received a dose rate alarm (155 mr/hr) based on the dose rate alarm set-point (150 mr/hr).

During the following shift, on January 25, 2016, an operator was requested to check pressure on the control rod drive (CRD) pumps. The operator entered the CRD filter cage area that is posted, "This Is Not a Self-Brief Area, Contact RP," without contacting RP. After starting the CRD pump, the control room again requested the operator to verify the pressure. During this second entry into the CRD cage area, the operator received a dose rate alarm. Subsequent investigation determined high radiation dose rates in the area and the postings were subsequently changed to reflect those conditions. Control room operators put the CRD pump back in service after the non-licensed operator's first pressure verification but prior to the second pressure verification. The change in area dose rates was not determined prior to the second entry and the requisite HRA controls were not in effect at that time (i.e., HRA posting, HRA radiation work permit, HRA radiological briefing).

In both of the above instances, the operators left the area immediately based on the electronic dosimeter dose rate alarms. TS 5.7.1, Section E, requires that dose rates in HRAs be determined prior to entry and that personnel entering HRAs be briefed and made knowledgeable of the dose rates. Contrary to this requirement, the non-licensed operators were in HRAs where RP had not determined the dose rates and were not knowledgeable of the current dose rates.

Analysis. For the two examples described, Entergy's failure of operations personnel to notify the RP department and non-licensed operators in the field when operating plant equipment that created HRA dose rates that were not surveyed by RP to determine dose rates prior to non-licensed operators entering those areas is a performance deficiency and violation of TS 5.7.1. This performance deficiency was reasonably within Entergy's ability to foresee and correct.

The inspectors determined that the performance deficiency was more than minor because it resulted in the unintended exposure of two workers and affected the Occupational Radiation Safety cornerstone attribute of program and process associated with exposure/contamination controls and if left uncorrected could result in more significant exposures. In both examples, there was no potential for overexposure as the operators left the area immediately based on the dosimeter dose rate alarms.

The finding was assessed using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," and was determined to be of very low safety significance (Green) because it was not related to ALARA, did not result in an overexposure or a substantial potential for overexposure, and did not compromise Entergy's ability to assess dose.

A cross-cutting aspect of Human Performance, Teamwork, was associated with this finding. Specifically, licensed operators did not communicate to RP or non-licensed operators in the field when operating plant equipment which had the potential to change plant radiological conditions. In one case, the communication was required by a plant operating procedure, OP-13D, Section C.2.1. [H.4]

Enforcement. TS 5.7.1, Section E, requires that dose rates in HRAs be determined prior to entry and that personnel entering HRAs be briefed and made knowledgeable of the dose rates in the area. Contrary to this requirement, on January 24, 2016, and January 25, 2016, operators entered areas where equipment was placed into service without being advised prior to the start, which resulted in operators not receiving an adequate brief from RP and a failure of RP to conduct a proper survey and provide an adequate brief of dose rates in those areas. Specifically, on January 24, 2016, control room operators placed the 'A' RHR pump in the shutdown cooling mode of operation which caused area dose rates to increase. Operators failed to notify RP prior to starting the RHR pump. Subsequently, an operator returned to this area to demobilize hoses used for venting and entered an unsurveyed HRA where the operator was not briefed and knowledgeable of the current dose rates in the area. On January 25, 2016, control room operators started a CRD pump without notifying RP and radiological conditions changed resulting in an unsurveyed HRA in the CRD filter cage area. An operator entered the CRD filter cage area which is posted, "This Is Not a Self-Brief Area, Contact RP," without contacting RP. The operator entered the unsurveyed HRA where the operator was not briefed and knowledgeable of the current dose rates in the area. Entergy corrective actions included entering these issues into the CAP. Because this

issue is of very low safety significance (Green) and Entergy entered this into their CAP as CR-JAF-2016-00269 and CR-JAF-2016-00318, this finding is being treated as an NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy. **(NCV 05000333/2016002-01, Failure to Determine Dose Rates Prior to Entering a High Radiation Area)**

2RS2 Occupational ALARA Planning and Controls (71124.02 - 2 samples)

a. Inspection Scope

The inspectors assessed Entergy's performance with respect to maintaining occupational individual and collective radiation exposures ALARA. The inspectors used the requirements contained in 10 CFR 20, applicable RGs, TSs, and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted a review of FitzPatrick collective dose history and trends, ongoing and planned radiological work activities, previous post-outage ALARA reviews, radiological source term history and trends, and ALARA dose estimating and tracking procedures.

Source Term Reduction and Control

The inspectors reviewed the current plant radiological source term and historical trend, plans for plant source term reduction, and contingency plans for changes in the source term as the result of changes in plant fuel performance or changes in plant primary chemistry.

The inspectors observed radiological work activities and evaluated the use of shielding and other engineering work controls based on the radiological controls and ALARA plans for those activities.

Radiation Worker Performance

The inspectors observed radiation worker and RP technician performance during radiological work to evaluate worker ALARA performance according to specified work controls and procedures. Workers were interviewed to assess their knowledge and awareness of planned and/or implemented radiological and ALARA work controls.

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 20, RG 8.15, RG 8.25, NUREG/CR-0041, TS, and procedures required by TS 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 PIs for unintended internal exposure incidents.

Engineering Controls

The inspectors reviewed operability and use of both permanent and temporary ventilation systems and the adequacy of airborne radioactivity radiation monitoring in the plant based on location, sensitivity, and alarm setpoints.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04 - 3 samples)

a. Inspection Scope

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

Inspection Planning

The inspectors reviewed RP program audits, National Voluntary Laboratory Accreditation Program (NVLAP) dosimetry testing reports, and procedures associated with dosimetry operations.

Source Term Characterization

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.

External Dosimetry

The inspectors reviewed dosimetry NVLAP accreditation, onsite storage of dosimeters, the use of "correction factors" to align electronic personal dosimeter results with NVLAP dosimetry results, dosimetry occurrence reports, and CAP documents for adverse trends related to external dosimetry.

Internal Dosimetry

The inspectors reviewed internal dosimetry procedures; whole body counter measurement sensitivity and use; adequacy of the program for whole body count monitoring of plant radionuclides or other bioassay technique; adequacy of the program for dose assessments based on air sample monitoring and the use of respiratory protection; and internal dose assessments for any actual internal exposure.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06 – 6 samples)

a. Inspection Scope

The inspectors reviewed the treatment, monitoring, and control of radioactive gaseous and liquid effluents. The inspectors used the requirements in 10 CFR 20; 10 CFR 50, Appendix I; TS; offsite dose calculation manual (ODCM); applicable industry standards; and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted an in-office review of the FitzPatrick 2013 and 2014 annual radioactive effluent and environmental reports, radioactive effluent program documents, UFSAR, ODCM, and applicable event reports.

Walkdowns and Observations

The inspectors walked down the gaseous and liquid radioactive effluent monitoring and filtered ventilation systems to assess the material condition and verify proper alignment according to plant design. The inspectors also observed potential unmonitored release points and reviewed radiation monitoring system surveillance records and the routine processing and discharge of gaseous and liquid radioactive wastes.

Calibration and Testing Program

The inspectors reviewed gaseous and liquid effluent monitor instrument calibration, functional test results, and alarm setpoints based on National Institute of Standards and Technology calibration traceability and ODCM specifications.

Sampling and Analyses

The inspectors reviewed radioactive effluent sampling activities, representative sampling requirements, compensatory measures taken during effluent discharges with inoperable effluent radiation monitoring instrumentation, the use of compensatory radioactive effluent sampling, and the results of the inter-laboratory and intra-laboratory comparison program including scaling of hard-to-detect isotopes.

Instrumentation and Equipment

The inspectors reviewed the methodology used to determine the radioactive effluent stack and vent flow rates to verify that the flow rates were consistent with TS/ODCM and UFSAR values. The inspectors reviewed radioactive effluent discharge system surveillance test results based on TS acceptance criteria. The inspectors verified that high-range effluent monitors used in emergency operating procedures are calibrated and operable and have post-accident effluent sampling capability.

Dose Calculations

The inspectors reviewed changes in reported dose values from the previous annual radioactive effluent release reports, several liquid and gaseous radioactive waste discharge permits, the scaling method for hard-to-detect radionuclides, ODCM changes, land use census changes, public dose calculations (monthly, quarterly, annual), and records of abnormal gaseous or liquid radioactive releases.

Problem Identification and Resolution

The inspectors evaluated whether problems associated with the radioactive effluent monitoring and control program were identified at an appropriate threshold and properly addressed in Entergy's CAP.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08 – 6 samples)

a. Inspection Scope

The inspectors verified the effectiveness of Entergy's programs for processing, handling, storage, and transportation of radioactive material. The inspectors used the requirements of 49 CFR 170-177; 10 CFR 20, 37, 61, and 71; applicable industry standards; RGs; and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted an in-office review of the solid radioactive waste system description in the UFSAR, the process control program, and the recent radiological effluent release report for information on the types, amounts, and processing of radioactive waste disposed. The inspectors reviewed the scope of quality assurance audits performed for this area since the last inspection.

Radioactive Material Storage

The inspectors observed radioactive waste container storage areas and verified that Entergy had established a process for monitoring the impact of long-term storage of the waste.

Radioactive Waste System Walkdown

The inspectors walked down the following items and areas:

- Accessible portions of liquid and solid radioactive waste processing systems to verify current system alignment and material condition
- Abandoned in place radioactive waste processing equipment to review the controls in place to ensure protection of personnel
- Changes made to the radioactive waste processing systems since the last inspection
- Processes for transferring radioactive waste resin and/or sludge discharges into shipping/disposal containers
- Current methods and procedures for dewatering waste

Waste Characterization and Classification

The inspectors identified radioactive waste streams and reviewed radiochemical sample analysis results to support radioactive waste characterization. The inspectors reviewed the use of scaling factors and calculations to account for difficult-to-measure radionuclides.

Shipment Preparation

The inspectors reviewed the records of shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and Entergy verification of shipment readiness.

Shipping Records

The inspectors reviewed selected non-excepted package shipment records.

Identification and Resolution of Problems

The inspectors assessed whether problems associated with radioactive waste processing, handling, storage, and transportation, were identified at an appropriate threshold and properly addressed in Entergy's CAP.

b. Findings

Introduction. An NRC-identified Green NCV of 10 CFR 20.1406(c) was identified due to Entergy not conducting operations to minimize the introduction of residual radioactivity into the site. Contrary to this, for at least the past four years, Entergy allowed leakage of the solid radwaste processing system to occur, resulting in spilled radioactive wastes to accumulate and remain on the floor of the filter sludge tank room in the radwaste building. The failure to control continuing leakage and removal of the accumulated solid radioactive wastes is a performance deficiency. Entergy entered this issue into their CAP as CR-JAF-2016-01784 with actions to characterize and evaluate the adverse conditions listed below.

Description. Per 10 CFR 20.1406(c), licensees are required to conduct operations to minimize the introduction of residual radioactivity into the site. The requirement is

intended, in part, to reduce the likelihood of subsurface contamination which could greatly increase the cost and complexity of future decommissioning efforts. Fitzpatrick has an area in the Radwaste Building (elevation 252') where spilled radioactive materials have been allowed to accumulate from the filter sludge tank, and the cause of the spill has not been corrected. This uncontrolled release and dispersal of highly radioactive material in this room is known to exist for over four years. The accumulation of unnecessary amounts of solid radwaste onsite rather than processing, packaging, and transporting offsite for burial, adversely affects the scope of future decommissioning. Entergy, by its inaction over four years to correct the spillage, degradation of the solid radwaste system, and inaction to clean-up, package, and ship offsite the resultant accumulation of significant amounts of radioactive material, failed to minimize the introduction of residual radioactivity into the site.

Analysis. The failure to control spilled radioactive wastes is a performance deficiency within Entergy's ability to control and correct. The issue is more than minor because it is associated with the program and process attribute of the Public Radiation Safety cornerstone and adversely affected the cornerstone objective to prevent the inadvertent release and/or loss of control of licensed material. In accordance with IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process," the finding was determined to be of very low safety significance (Green) because the performance deficiency involved radioactive material control, but did not involve transportation or public exposure.

The finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Resolution, in that the condition was known to exist for over four years, impacted the radwaste system effectiveness to process solid radwastes, and has not been corrected [P.3].

Enforcement. Title 10 CFR 20.1406(c) requires, in part, that licensees shall, to the extent practical, conduct operations to minimize the introduction of residual radioactivity into the site. Contrary to this, since at least 2012, Entergy failed to adequately maintain the solid radwaste processing system leak tight and failed to clean-up resulting leakage of radioactive material, causing the accumulation of residual radioactivity to the site. The site areas impacted are within locked HRAs and therefore, continued non-compliance does not present an immediate safety or security concern. Because this violation is of very low safety significance (Green) and FitzPatrick entered this issue into their CAP as CR-JAF-2016-01784, this violation is being treated as an NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy (**NCV 05000333/2016002-02, Failure to Conduct Operations to Minimize the Introduction of Residual Radioactivity to the Site**)

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 - 3 samples)

.1 Reactor Coolant System (RCS) Specific Activity and RCS Leak Rate

a. Inspection Scope

The inspectors reviewed Entergy's submittals for the RCS specific activity and RCS leak rate PIs for the period of April 1, 2015, through March 31, 2016. To determine the

accuracy of the PI data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7. The inspectors also reviewed RCS sample analysis and control room logs of daily measurements of RCS leakage, and compared that information to the data reported by the PI.

b. Findings

No findings were identified.

.2 Radiological Effluent TS/ODCM Radiological Effluent Occurrences

a. Inspection Scope

The inspectors reviewed Entergy submittals for the radiological effluent TS/ODCM radiological effluent occurrences PI for the first quarter 2014 through the fourth quarter 2015. The inspectors used PI definitions and guidance contained in NEI Document 99-02, Revision 7, to determine if the PI data was reported properly. The inspectors reviewed the public dose assessments for the PI for public radiation safety to determine if related data was accurately calculated and reported.

The inspectors reviewed the CAP database to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous and liquid effluent summary data and the results of associated offsite dose calculations to determine if indicator results were accurately reported.

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 that Entergy staff 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.

b. Findings

No findings were identified.

.2 Annual Sample: Torus Strainer Debris Loading Analysis

a. Inspection Scope

The inspectors reviewed the identification, evaluation, and corrective actions associated with CR-JAF-2014-05568. This CR was initiated by Entergy staff to assess the adequacy of changes made to the torus strainer debris loading analysis. The inspectors further verified that evaluations and corrective actions were adequate to ensure margin exists between the estimated amount of sludge in the torus and the maximum amount assumed in hydraulic calculations associated with the emergency core cooling strainers located in the torus. The inspectors further assessed whether the current torus cleaning frequency was adequate.

The inspectors reviewed the procedures that described Entergy's CAP at Fitzpatrick when this issue was identified. The inspectors assessed Entergy's problem identification threshold, prioritization, and timeliness of corrective actions regarding replacement torus strainers, which had been installed in 1996, in response to NRC Bulletin 96-03.

The inspectors performed reviews of the documents noted in the Attachment to this report and interviewed engineering personnel to assess the effectiveness of implemented corrective actions. The inspectors compared the actions taken to the requirements of Entergy's CAP and 10 CFR Part 50, Appendix B.

b. Findings and Observations

No findings were identified.

The inspectors determined that the current torus strainer was installed in 1996. To ensure that strainer debris loading during postulated accident conditions would be maintained less than the assumption in design basis calculations (3,000 lbs dry sludge), Entergy staff implemented a program to perform a visual general examination of the torus each refueling outage. Entergy staff estimated the total amount of sludge (expected corrosion product build-up) prior to each refueling outage. Entergy staff then added an amount assumed to accumulate during the next operating cycle and determined if this was less than 3,000 lbs. The inspectors determined this activity was tracked by Entergy as commitment A-14681, "Torus Desludge Determination."

Regarding the sludge generation assumed during an operating cycle, the inspectors reviewed the document entitled "Utility Resolution Guide for ECCS Suction Strainer Blockage", Volume 1, October 1998 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML092530482). The inspectors noted this study was referenced in an NRC letter dated February 8, 2001, which completed NRC review of Bulletin 96-03 for the Fitzpatrick plant (ADAMS Accession No. ML003781499). The inspectors determined that the study results reasonably supported Fitzpatrick plant specific assumptions (250 lbs. dry sludge per year) for estimating sludge.

The inspectors reviewed Entergy documents since 1998, and determined Entergy staff last took action to remove sludge from the torus during a refueling outage in 2010. The estimated amount at that time was approaching 3,000 lbs. (dry sludge). Entergy staff removed 1,874 lbs., leaving an estimated 1,126 pounds of dry sludge in the torus. Since then, Entergy staff estimated the amount of sludge prior to refueling outages in 2012 and

2014 and concluded no sludge required removal. Entergy staff most recently estimated the total amount, assuming no refueling outage in October 2016, and plant operation to the end of January 2017, to total 2,709 lbs. (dry) sludge in the torus at that time. The inspectors determined this was less than 3,000 lbs. assumed in calculations. The inspectors determined this was adequate to maintain margin to design assumptions. However, if this plant shutdown date changes, the inspectors observed the calculation would need to be revised, in accordance with Entergy's normal processes, to reflect the new date and determine when sludge removal is required to implement commitment A-14681, "Torus Desludge Determination."

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by Entergy outside of the CAP, such as trend reports, PIs, system health reports, and CAP backlogs. The inspectors also reviewed Entergy's CAP database for the first and second quarters of 2016 to assess CRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRC's daily CR review (Section 40A2.1) to verify that Entergy personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

b. Findings and Observations

No findings were identified.

The inspectors evaluated a sample of CRs generated over the course of the past two quarters. The inspectors looked for subtle declines in performance that may be attributable to FitzPatrick's announced decision to cease operation in early 2017. The inspectors determined that, in most cases, the issues were appropriately evaluated by Entergy staff for potential trends and resolved within the scope of the CAP. Specifically, the inspectors noted that significant maintenance activities were still being pursued despite the impending shutdown. For example, the inspectors noted that replacement of corrosion-susceptible bolting in the CRD system hydraulic control units, based on site-specific and industry operating experience, continued to completion. Also, the inspectors considered that replacement of two SRVs during the June forced outage, based on industry operating experience, demonstrated effective use of the CAP.

40A3 Follow-Up of Events and Notices of Enforcement Discretion (71153 - 3 samples)

.1 Plant Events

a. Inspection Scope

For the plant event listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant event to appropriate regional

personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Entergy made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Entergy's follow-up actions related to the events to assure that Entergy implemented appropriate corrective actions commensurate with their safety significance.

- Manual reactor scram following an electrical transient on non-safety-related breaker 10340 that resulted in a loss of 4 L-gears (switchgears) L13, L23, L33, and L43 on June 24, 2016

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report (LER) 05000333/2015-007-00: Slow Exhaust Fan Start Leads to Secondary Containment Vacuum below Technical Specification Limit

On December 1, 2015, FitzPatrick operators were in the process of transitioning from the reactor building being isolated with the SBGT system in operation to the reactor building being unisolated and normal reactor building ventilation system being in service. During this switch, the automatic start of the 'B' above refuel floor exhaust fan, after the exhaust damper fully opened, did not occur for approximately 60 seconds. With the normal reactor building ventilation supply fans in service, this condition resulted in an increase in secondary containment pressure to a level greater than the TS limit of 0.25 inches of vacuum water gauge. FitzPatrick staff determined that the apparent cause of the 'B' exhaust fan delayed start was hardened grease on the motor starter contactor. Corrective action was to remove the hardened grease and lubricate the motor starter contactor. Additionally, the frequency of preventive maintenance to perform this action was changed from 15 years to 5 years.

The inspectors reviewed this event when it occurred, as documented, along with the enforcement aspects of the issue, in NRC Integrated Inspection Report 05000333/2015004, Section 1R15. The inspectors did not identify any new issues during review of this LER. This LER is closed.

.3 (Closed) LER 05000333/2015-008-00: Containment Atmosphere Dilution System Reliability Degraded due to Manufacturer Defect in Temperature Transmitters

The function of the containment atmosphere dilution (CAD) system is to maintain combustible gas concentrations in the primary containment at less than flammability limits after a loss of coolant accident, by diluting them with nitrogen. The system also supplies nitrogen to pneumatically operated components in the drywell (such as the main steam isolation valves and SRVs). Each of the two trains of the system contains a liquid nitrogen storage tank, from which the nitrogen is gasified using ambient vaporizers and heated by electric heaters for use in the system. Downstream of the heaters, the system is constructed of materials that are not compatible with extremely low temperature (less than -20°F), therefore, that portion of the system is automatically isolated if low temperature is detected.

On July 31, 2015, the 'A' CAD system automatically isolated due to failure of the temperature transmitter that supplies the 'A' train isolation valves. That temperature transmitter had been recently installed under an engineering equivalent change due to obsolescence of the original temperature transmitter. The failure was attributed to infant mortality and it was replaced with a like transmitter from spares.

On November 11, 2015, the 'B' CAD system automatically isolated due to failure of the temperature transmitter that supplies the 'B' train isolation valves, the same component that had previously failed in the 'A' train. FitzPatrick staff returned the failed transmitters to the vendor for failure analysis. The vendor determined that the cause of the failures was insulation damage to wire associated with a transformer in the temperature transmitter that had occurred during unit assembly. On December 18, 2015, the vendor issued a 10 CFR 21 notification concerning the defective component line; and by December 30, 2015, FitzPatrick staff had replaced the potentially defective transmitters with new spares that had been confirmed by the vendor not to contain the defect.

FitzPatrick staff determined that their use of these temperature transmitters was reportable to the NRC under 10 CFR 50.73 as: 1) a condition which was prohibited by the plant's TS, in that the condition existed longer than the limiting condition for operation; 2) a condition that could have prevented the fulfillment of the safety function of a system needed to mitigate the consequences of an accident; and 3) a single cause that caused two independent trains to become inoperable in a single system designed to mitigate the consequences of an accident.

The inspectors evaluated the safety significance of this event. During the period that defective temperature transmitters were installed, the associated train of CAD had to have been considered to be inoperable in accordance with IMC 0326, "Operability Determinations and Functionality Assessments for Conditions Adverse to Quality or Safety," because its ability to perform its specified safety function for the required mission time was indeterminate. However, during that period, the two actual failures occurred separately, so a loss of safety function never occurred. Additionally, the CAD system is a manually operated system; had a train that was isolated due to a temperature transmitter failure been required for use, operators could have used a keylock override to reopen the isolation valves. The inspectors concluded that this event had minimal safety significance.

The inspectors confirmed that this issue had constituted a violation of TS 3.6.3.2, "Containment Atmosphere Dilution System." Specifically, IMC 0326 requires that, in order to be considered operable, an SSC must be capable of performing the specified safety functions of its design, within the required range of physical conditions, initiation times, and mission times in the current licensing basis. In the case of CAD, the mission time is 100 days. The 'A' CAD temperature transmitter that was installed on June 17, 2015, had only a 44-day service life (failed on July 31, 2015) and therefore was inoperable for the entire time it was installed. Similarly, the 'B' CAD temperature transmitter that was installed on July 2, 2015, had a 133-day service life (failed on November 11, 2015) and therefore was inoperable for the last 99 days of that period (August 5 to November 11, 2015). In either case, these times exceeded the TS allowed outage time of 30 days, plus 12 hours to be in mode 3. The enforcement aspects of the violation are discussed in Section 4OA7. This LER is closed.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On July 27, 2016, the inspectors presented the inspection results to Mr. Brian Sullivan, 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.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by FitzPatrick staff and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

- TS 3.6.3.2, "Containment Atmosphere Dilution System," requires that, if one CAD subsystem is inoperable, then restore the subsystem to operable within 30 days or be in mode 3 within 12 hours. Contrary to the above, from June 17, 2015, to July 31, 2015, a period of 34 days, 'A' CAD subsystem was inoperable without the plant being placed in mode 3 within 30 days and 12 hours of becoming inoperable. Also, contrary to the above, from August 5, 2015, to November 11, 2015, a period of 99 days, 'B' CAD subsystem was inoperable without the plant being placed in mode 3 within 30 days and 12 hours of becoming inoperable. FitzPatrick staff entered this issue into their CAP as CR-JAF-2015-05453. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the inspectors determined that this finding was of very low safety significance (Green) because the performance deficiency was not a design or qualification deficiency, did not involve an actual loss of a safety function of a single train for greater than its TS allowed outage time (because operator action could be taken to restore system function if the subject temperature transmitter failed), and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Sullivan, Site Vice President
S. Vercelli, General Manager, Plant Operations
C. Adner, Director, Regulatory Assurance and Performance Improvement (Acting)
A. Armstrong, Superintendent Operations Training
J. Chapman, Supervisor, Radiation Protection
C. Sawatzke, Component Engineer
M. Dawes, Regulatory Assurance
W. Drews, Manager, Regulatory Assurance
G. Foster, Operations Manager
R. Heath, Manager, Radiation Protection
J. Jones, Manager, Emergency Planning
A. King, Supervisor, Radiation Protection
B. Landers, Supervisor, Chemistry
A. Noto, Supervisor, Radiation Protection
T. Peter, Director, Regulatory and Performance Improvement
M. Ponzio, Manager, Chemistry/Manager, Maintenance
D. Poulin, Director, Engineering
R. Pratt, Supervisor, Radiation Protection
T. Redfearn, Manager, Security
M. Reno, Manager, Training
T. Restuccio, Manager, Operations
J. Richardson, Manager, Systems and Components Engineering
M. Summers, Engineering

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATEDOpen/Closed

| | | |
|---------------------|-----|---|
| 05000333/2016002-01 | NCV | Failure to Determine Dose Rates Prior to Entering a High Radiation Area (Section 2RS1) |
| 05000333/2016002-02 | NCV | Failure to Conduct Operations to Minimize the Introduction of Residual Radioactivity to the Site (Section 2RS8) |

Closed

| | | |
|----------------------|-----|---|
| 05000333/2015-007-00 | LER | Slow Exhaust Fan Start Leads to Secondary Containment Vacuum below Technical Specification Limit (Section 4OA3) |
| 05000333/2015-008-00 | LER | Containment Atmosphere Dilution System Reliability Degraded Due to Manufacturer Defect in Temperature Transmitters (Section 4OA3) |

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Documents

System Health Report, 345 and 115 kV Distribution, first quarter 2016

Procedure

AOP-72, "115 kV Grid Loss, Instability, or Degradation," Revision 11
 AP-12.04, "Seasonal Weather Preparations," completed 5/12/16
 AP-12.13, "345/115 kV Transmission Line Operations and Interface," Revision 7
 ODSO-10, "345 kV and 115 V Abnormal Circuit Breaker Operation," Revision 9
 OP-11A, "Main Generator, Transformers and Isolated Bus Phase Cooling," Revision 51
 OP-44, "115 kV System," Revision 22
 OP-51A, "Reactor Building Ventilation and Cooling System," Revision 50
 OP-52, "Turbine Building Ventilation," Revision 23
 ST-9R, "EDG System Quick-Start Operability Test and Offsite Circuit Verification," Revision 8
 ST-9W, "Electrical Lineup and Power Verification," Revision 11

Condition Reports

| | | |
|-------------------|-------------------|-------------------|
| CR-JAF-2014-01230 | CR-JAF-2014-04069 | CR-JAF-2015-04406 |
| CR-JAF-2015-04739 | | |

Section 1R04: Equipment Alignment

Procedures

ODSO-4, "Shift Turnover and Log Keeping," Revision 12
 OP-15, "High Pressure Coolant Injection," Revision 61
 OP-17, "Standby Liquid Control System," Revision 51
 OP-20, "Standby Gas Treatment System," Revision 38
 OP-21, "Emergency Service Water," Revision 38
 OP-22, "Diesel Generator Emergency Power," Revision 61
 OP-60, "Diesel Generator Room Ventilation," Revision 9

Section 1R05: Fire Protection

Documents

JAF-RPT-04-00478, "JAF Fire Hazards Analysis," Revision 1

Procedures

PFP-PWR02, "West Cable Tunnel / Elevation 258-Foot Fire Area/Zone IC/CT-1," Revision 5
 PFP-PWR15, "Crescent Area-West / Elevation 227-Foot and 242-Foot Fire Area/Zone XVIII/RB-1W," Revision 4
 PFP-PWR29, "Switchgear Room East / Elevation 272-Foot Fire Area/Zone II/SW-2," Revision 4
 PFP-PWR30, "Switchgear Room West / Elevation 272-Foot Fire Area/Zone IC/SW-1," Revision 2
 PFP-PWR31, "Emergency Diesel Generator Spaces-South / Elevation 272-Foot Fire Area/Zone V/EG-1, EG-2, EG-5," Revision 4
 PFP-PWR32, "Emergency Diesel Generator Spaces-North / Elevation 272-Foot Fire Area/Zone VI/EG-3, EG-4, EG-6," Revision 5

Section 1R06: Flood Protection MeasuresDocuments

JAF-NE-09-00001, "JAF Probabilistic Safety Assessment," Appendix C1, "Internal Flooding Analysis," Revision 0

WO 52427358

WO 52457756

Procedures

EOP-5/6, "Secondary Containment Control Radioactive Release Control," Revision 8

IMP-20.8, "RCIC and HPCI Crescent Area Water Level Instrument Calibration," Completed 8/11/15

Condition Reports

CR-JAF-2015-03592

CR-JAF-2016-00694

CR-JAF-2016-01534

CR-JAF-2016-01535

Section 1R11: Licensed Operator Regualification Program and Licensed Operator PerformanceProcedures

ACAD 10-001, February 2010, Revision 0

AOP-17, "Loss of 10400 Bus," Revision 19

AOP-27, "Control Rod Malfunction," Revision 12

AOP-51, "Unexpected Fire Pump Start," Revision 7

AOP-60, "Loss of Reactor Protection System Bus B Power," Revision 6

AOP-8, "Unexpected Change in Core Flow," Revision 38

EN-TQ-114, "LORT Program Description," Revision 10

EN-TQ-115, "Shift Manager Training Program," Revision 8

EN-TQ-201, "SAT Process," Revision 21

EN-TQ-202, "Simulator Configuration Control," Revision 9

EN-TQ-217, "Examination Security," Revision 5

EOP-2, "Reactor Pressure Vessel Control," Revision 9

EOP-3, "Failure to Scram," Revision 10

EOP-3a, "Failure to Scram - ED," Revision 3

EOP-4, "Primary Containment Control," Revision 8

EP-3, "Backup Control Rod Insertion," Revision 12

EP-5, "Termination and Prevention of Reactor Pressure Vessel Injection," Revision 7

NT 3744, "Simulator Transient Tests," Revision 17

ODSO-30, "Maintenance of NRC Licenses and STA Qualifications," Revision 26

OP-65, "Startup and Shutdown Procedure," Revision 120

JPMs

20004168 20004234.C1 20004523 20041401 20102016F 21101001

22301004C 25901006 26402004 295037005

Simulator Scenarios

JSES-LOR-2014B

JSES-LOR-2014D

JSES-LOR-2014E

JSES-LOR-2014H

Simulator-Related Test Documents

JSES-LOR-2014A JSES-LOR-2014B JSES-LOR-2014D JSES-LOR-2014F
 JSES-LOR-2016E JSES-LOR-2016G

Miscellaneous

ANS 3.4-1983
 NRC Information Notice IN 2004-20
 NRC Information Notice IN 91-08
 NRC Information Notice IN 94-14
 NRC Regulatory Guide 1.134
 NRC Regulatory Guide 1.8

Section 1R12: Maintenance EffectivenessDocuments

JAF-RPT-MST-02480, "Maintenance Rule Basis Document System 029 Main Steam," Revision 9
 JAF-RPT-RCIC-02284, "Maintenance Rule Basis Document System 013 (RCIC)," Revision 7
 JENG-16-0005, "a(1) Status Evaluation for System 29," March 17, 2016
 JENG-APL-16-0007, "Maintenance Rule Action Plan System 29 [Main Steam]," Revisions 0 and 1
 System Health Reports, Main Steam, 4th Quarter 2014, 1st – 4th Quarter 2015, 1st Quarter 2016
 System Health Report, RCIC, 4th Quarter 2015
 WO 00352812

Procedures

EN-DC-205, "Maintenance Rule Monitoring," Revision 5
 EN-DC-206, "Maintenance Rule (a)(1) Process," Revision 3

Maintenance Rule Functional Failure Evaluations for Condition Reports

| | | |
|------------------|------------------|------------------|
| CR-JAF-2014-4381 | CR-JAF-2014-4335 | CR-JAF-2014-4433 |
| CR-JAF-2015-3924 | CR-JAF-2016-1443 | CR-JAF-2016-0263 |
| CR-JAF-2016-0324 | CR-JAF-2016-1671 | |

Condition Reports

CR-JAF-2016-0324

Section 1R13: Maintenance Risk Assessment and Emergent Work ControlProcedures

EN-WM-104, "On-Line Risk Assessment," Revision 12
 AP-10.10, "On-Line Risk Assessment," Revision 9

Section 1R15: Operability Determinations and Functionality AssessmentsCondition Reports

CR-JAF-2016-1822

Miscellaneous

EC 65203

Section 1R19: Post-Maintenance Testing

Procedures

ESP-22.007, "EDG C Fuel Oil Transfer Pumps Flow Rate Test," Completed 5/19/16

MP-003.11, "Hydraulic Control Unit Directional Control Valves 03SOV-120 through 123,"
Revision 16

MP-003.17, "Hydraulic Control Unit Manifold Filters & Rupture Unit Maintenance," Revision 4

MP-101.12, "Lubrication of Reactor Core Isolation Coolant Pump and Turbine," Completed
April 19, 2016

OP-25, "Control Rod Drive Hydraulic System," Revision 86

ST-9BA, "EDG A and C Full Load Test and ESW Pump Operability Test," Completed May 5, 2016

ST-9BB, "EDG B and D Full Load Test and ESW Pump Operability Test," Completed May 31,
2016

ST-22K, "Manual Safety Relief Valve Operation System Inservice Test," Revision 4

ST-24J, "RCIC Flow Rate and Inservice Test," Completed April 20, 2016

ST-24J, "RCIC Flow Rate and Inservice Test," Completed April 21, 2016

Condition Reports

CR-JAF-2016-01443

Work Orders

00444172

00445688

Section 1R20: Forced Outage

Documents

Transient Checklist for Trip of 71-10340 Feeder Breaker and Scram Response

EC 65403, "'B' Reactor Water Circulation Motor Generator Fluid Drive Oil Cooler High
Temperature Due to Loss of Cooling (FO22-02)," Revision 0

Procedures

ARP 09-4-2-27, "Reactor Water Circulation PMP A MTR Winding CLR FLOW LO," Revision 3

AOP-11, "Loss of Reactor Building Closed Loop Cooling," Revision 19

ESP-65.001, "Drywell Inspection," Revision 3

Condition Reports

CR-JAF-2016-02269

Work Orders

52607939

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures

EN-RP-101, "Access Control for Radiologically Controlled Areas," Revision 11

EN-RP-105, "Radiological Work Permits," Revision 14

EN-RP-106, "Radiological Survey Documentation," Revision 7

EN-RP-106-01, "Radiological Survey Guidelines," Revision 2

EN-RP-108, "Radiation Protection Posting," Revision 17

EN-RP-123, "Radiological Controls for Highly Radioactive Objects," Revision 1

OP-13D, "RHR, Shutdown Cooling," Revision 27
RP-OPS-02.05, "Response to Notifications and Alarms," Revision 13
RP-OPS-03.05, "Refuel Floor and Drywell Radiological Controls," Revision 17
RPSO-13, "RP Department Guidelines for Start-Up, Shutdown, and Scram," Revision 3

Condition Reports

| | | |
|-------------------|-------------------|-------------------|
| CR-JAF-2016-00269 | CR-JAF-2016-00318 | CR-JAF-2016-00318 |
| CR-JAF-2016-00556 | CR-JAF-2016-00651 | CR-JAF-2016-00817 |
| CR-JAF-2016-01077 | CR-JAF-2016-01126 | CR-JAF-2016-01792 |
| CR-JAF-2016-01971 | | |

Audits/Self Assessments

QA-14/15-2015-JAF-1, "Quality Assurance Audit Report," dated November 10, 2015

Section 2RS2: Occupational ALARA Planning and Controls

Policy

EN-PL-169, "Commitment to ALARA Principles," Revision 0

Procedures

EN-RP-110, "ALARA Program," Revision 13
EN-RP-110-01, "ALARA Initiative Deferrals," Revision 1
EN-RP-110-02, "Elemental Cobalt Sampling," Revision 0
EN-RP-110-03, "Collective Radiation Exposure Reduction Guidelines," Revision 4
EN-RP-110-04, "Radiation Protection Risk Assessment Process," Revision 5
EN-RP-110-05, "ALARA Planning and Controls," Revision 2
EN-RP-110-06, "Outage Dose Estimating and Tracking," Revision 1

Condition Reports

CR-JAF-2016-01408 CR-JAF-2015-01785

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

Procedures

EN-RP-122, "Alpha Monitoring," Revision 9
EN-RP-131, "Air Sampling," Revision 15
EN-RP-503, "Selection, Issue, and Use of Respiratory Protection Equipment," Revision 7

Section 2RS4: Occupational Dose Assessment

Procedures

EN-RP-201, "Dosimetry Administration," Revision 4
EN-RP-202, "Personnel Monitoring," Revision 10
EN-RP-203, "Dose Assessment," Revision 7
EN-RP-204, "Special Monitoring Requirements," Revision 9
EN-RP-205, "Prenatal Monitoring," Revision 3
EN-RP-206, "Dosimeter of Legal Record Quality Assurance," Revision 5
EN-RP-207, "Planned Special Exposure," Revision 3
EN-RP-208, "Whole Body Counting/In-Vitro Bioassay," Revision 6

Section 2RS6: Radioactive Gaseous and Liquid Treatment SystemProcedures

EN-CY-111, "Radiological Groundwater Monitoring Program," Revision 6
 SP-01.05, "Wastewater Sampling and Analysis," Revision 14
 SP-01.06, "Gaseous Effluent Sampling and Analysis," Revision 17
 SP-01.11, "Unmonitored Paths Sampling and Analysis," Revision 25
 SP-03.06, "Representative Sampling and Determination of Radioactive Material," Revision 9
 SP-04.01, "Radiological Environmental Monitoring Program," Revision 3

Condition Reports

| | | |
|-------------------|-------------------|-------------------|
| CR-JAF-2014-03957 | CR-JAF-2015-00563 | CR-JAF-2014-04125 |
| CR-JAF-2014-06527 | CR-JAF-2014-06855 | CR-JAF-2015-00784 |

Effluent Monitor Calibrations

| <u>Monitor</u> | <u>Description</u> | <u>Dates</u> |
|----------------|---------------------------|--|
| 17 RM 458A | Radwaste 'A' | February 4, 2016, and April 26, 2016 |
| 17 RM 458B | Radwaste 'B' | November 23, 2015, and February 18, 2016 |
| 17 RM 452A | Reactor Bldg. Gaseous 'A' | December 2, 2015, and February 22, 2016 |
| 17 RM 452B | Reactor Bldg. Gaseous 'B' | November 18, 2015, and March 7, 2016 |
| 17 RM 456A | Refuel Floor 'A' | January 6, 2016, and March 28, 2016 |
| 17 RM 456B | Refuel Floor 'B' | November 20, 2015, and March 8, 2016 |
| 17 RM 50A | Stack 'A' | January 7, 2016, and March 30, 2016 |
| 17 RM 50B | Stack 'B' | January 7, 2016, and March 30, 2016 |
| 17 RM 431 | Turbine Bldg. 'A' | December 28, 2015, and April 20, 2016 |
| 17 RM 432 | Turbine Bldg. 'B' | February 12, 2016, and April 6, 2016 |
| 17 RM 351 | Normal Service Water | December 10, 2015, and March 1, 2016 |
| 17 RM 150A | Off-gas 'A' | August 20, 2014 |
| 17 RM 150B | Off-gas 'B' | January 13, 2015 |
| 17 RM 53A | Stack High Range 'A' | July 18, 2013, and April 27, 2015 |
| 17 RM 53B | Stack High Range 'B' | August 1, 2014, and October 29, 2015 |

Other

RP-Resp-03.02 Standby Gas Treatment Surveillance Tests
 'A' Train – July 15, 2014, and April 23, 2015
 'B' Train – October 14, 2014, and October 21, 2015

Section 2RS8: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and TransportationProcedures

EN-RW-102, "Radioactive Shipping Procedure," Revision 14
 EN-RW-105, "Process Control Program," Revision 5
 EN-RW-104, "Scaling Factors," Revision 12
 EN-RW-106, "Integrated Transportation Security Plan," Revision 4

Quality Assurance

O2C-JAF-2015: 0468; 0303; 0299; 0243; 0213; 0189; 0043; 0032
 Quality Assurance Audit Report QA-14/15-2015-JAF-1

10CFR61 Scaling Factors

10CFR61 Nuclide Distribution Reports for Powdered Resin
 Bead Resin
 Dry Active Waste
 Phase Separator
 Reactor Building Roof

Condition Reports

| | | |
|-------------------|-------------------|-------------------|
| CR-JAF-2014-02337 | CR-JAF-2014-03029 | CR-JAF-2014-04666 |
| CR-JAF-2014-05914 | CR-JAF-2014-05916 | CR-JAF-2014-07051 |
| CR-JAF-2015-00781 | CR-JAF-2015-02111 | CR-JAF-2015-02641 |
| CR-JAF-2015-02653 | CR-JAF-2015-03041 | CR-JAF-2015-03610 |
| CR-JAF-2015-04193 | CR-JAF-2015-04768 | CR-JAF-2015-04980 |
| CR-JAF-2015-05061 | CR-JAF-2015-05354 | CR-JAF-2016-01784 |

Training

DRW-2007, DOT Hazardous Materials
 FCBT-MPC-TSP, In-Depth Security Training (Transportation Security Plan)
 FCBT-RP-10CFR37, 10CDR37 Physical Protection of Category 1 and Category 2 Quantities of
 Radioactive Material
 HAZMAT-AW, Hazardous Material

Shipments

2015-1580 2015-1589 2015-1590 2015-1595 2016-1601

Section 40A2: Problem Identification and ResolutionProcedures

Suppression Chamber and Drywell Deterioration Inspection ST-15B, Revision 10, dated June 25,
 2009

Condition Reports

| | | |
|-------------------|-------------------|-------------------|
| CR-JAF-2014-00001 | CR-JAF-2014-05568 | CR-JAF-2016-00758 |
| LR-LAR-2016-00001 | | |

Miscellaneous

GE Nuclear Energy, Utility Resolution Guide for ECCS Suction Strainer Blockage, Volume 1,
 October 1998

New York Power Authority; JAF ECCS Suction Strainer Project, Duke Engineering and Services
 No. 50-333; Changes to Commitment Made in Response to NRC Bulletin 96-03
 Potential Plugging of ECCS Suction Strainers

NYP&A Letter JAFP-99-0284, October 22, 1999; Subject: James A. Fitzpatrick Power Plant Docket
 No. 50-333; Change to Commitment Made in Response to NRC Bulletin 96-03,
 Potential Plugging of ECCS Suction Strainers

Evaluations

EC 00000034375, Torus Sludge Determination for R020, 2/08/2012
 EC 0000005662, Review Torus Sludge Allowance for R0-18
 EC 040367, Engineering Input for Operability, CR-JAF-2012-07201
 EC 24119

EC 40145 Response to CR-JAF-2012-06616, Containment Pitting RFO 20 Inspections,
Engineering Input for Operability
EC 52964 Suppression Chamber and Drywell Deterioration Inspection
EC 64252
Engineering Reply to EC63877
Entergy Calculation JAF-CALC-06-00016, ENN-DC-126, James A Fitzpatrick Nuclear Power
Plant Strainer Performance Analysis for Increased Sludge Quantities, Revision 5
Response to CR-JAF-2012-6558 and CR-JAF-2012-6562, Drywell Coatings RFO 20 Inspections,
Engineering Input for Operability

Calculations

Calculation A384.F02, "JAF NUCLEAR PLANT: Estimation of Debris Generation
and Transport to the Suppression Pool Following a LOCA" Calculation of Torus
Debris Accumulation; Modification F1-97-031; Revision 4, dated May 22, 2000

VT Exam Data Sheets

Report No. 08VT149 Primary Containment Moisture Barrier Area (2 pages)
Report No. 08VT154 Primary Containment Moisture Barrier Area (2 pages)

ILRT Test

EN-DC-149, ILRT-R-2008-08, Reactor Containment Building Integrated Leakage Rate Test
Report, dated July 27, 2010
JAF ECCS Suction Strainer Project, Duke Engineering and Services, MOD F1-98-100, Revision 0
Underwater Construction Corporation, Torus Cleaning and Inspection Report,
September – October 2010, for Entergy Nuclear Northeast, J. A. Fitzpatrick Nuclear
Power Station; RCN-013

LIST OF ACRONYMS

| | |
|--------|---|
| 10 CFR | Title 10 of the <i>Code of Federal Regulations</i> |
| AC | alternating current |
| ADAMS | Agencywide Documents Access and Management System |
| ALARA | as low as is reasonably achievable |
| CAD | containment atmosphere dilution |
| CAP | corrective action program |
| CR | condition report |
| CRD | control rod drive |
| EDG | emergency diesel generator |
| ESW | emergency service water |
| HRA | high radiation area |
| IMC | Inspection Manual Chapter |
| JPM | job performance measure |
| kV | kilovolt |
| LER | licensee event report |
| NCV | non-cited violation |
| NEI | Nuclear Energy Institute |
| NRC | Nuclear Regulatory Commission |
| NVLAP | National Voluntary Laboratory Accreditation Program |
| ODCM | offsite dose calculation manual |
| PI | performance indicator |
| RCIC | reactor core isolation cooling |
| RCS | reactor coolant system |
| RG | regulatory guide |
| RHR | residual heat removal |
| RP | radiation protection |
| SBGT | standby gas treatment |
| SRV | safety/relief valve |
| SSC | structure, system, and component |
| TS | technical specification |
| UFSAR | updated final safety analysis report |
| VHRA | very high radiation area |
| WO | work order |