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

July 26, 2013

Mr. Lawrence Coyle
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 - NRC INTEGRATED INSPECTION REPORT 05000333/2013003

Dear Mr. Coyle:

On June 30, 2013, 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 11, 2013, 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.

This report documents one NRC-identified finding and one self-revealing finding of very low safety significance (Green). One of these findings was determined to involve a violation of NRC requirements. However, because of the very low safety significance, and because it is entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV), consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region 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.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390 of the NRC's "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 Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Scott P. Rutenkroger, PhD, Acting Chief
Reactor Projects Branch 2
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000333/2013003
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No:	50-333
License No:	DPR-59
Report No:	05000333/2013003
Licensee:	Entergy Nuclear Northeast (Entergy)
Facility:	James A. FitzPatrick Nuclear Power Plant
Location:	Scriba, NY
Dates:	April 1, 2013 through June 30, 2013
Inspectors:	E. Knutson, Senior Resident Inspector B. Sienel, Resident Inspector T. Hedigan, Operations Engineer J. Laughlin, Emergency Preparedness Inspector R. Rolph, Health Physicist
Approved by:	Scott P. Rutenkroger, PhD, Acting Chief Reactor Projects Branch 2 Division of Reactor Projects

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SUMMARY

IR 05000333/2013003; 04/01/2013 - 06/30/2013; James A. FitzPatrick Nuclear Power Plant (FitzPatrick); Operability Determinations and Problem Identification and Resolution.

This report covered a three-month period of inspection by resident inspectors, and an announced inspection and in-office inspections, performed by regional and headquarters inspectors. One NRC-identified finding and one self-revealing finding of very low safety significance (Green) were identified, one of which was a non-cited violation (NCV). 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 (SDP)," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross-Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated January 28, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

Cornerstone: Mitigating Systems

- Green. The inspectors identified an NCV of technical specification (TS) 3.1.3, "Control Rod Operability," because Entergy operators did not take the required actions within the allowed completion time in response to indication that the scram capability of a control rod was indeterminate. Specifically, when available information concerning the scram solenoid pilot valves (SSPVs) required control rod 30-11 to be declared inoperable, operators did not declare the control rod inoperable, did not fully insert the control rod within three hours, and did not disarm the associated control rod drive within four hours, as required by TS 3.1.3.C. Entergy's corrective actions included fully inserting and electrically disarming control rod 30-11, replacing the SSPVs, revising the instructions to operators, briefing operators on this issue, and initiating a condition report.

  This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, operators did not fully insert and electrically disarm control rod 30-11 within the TS allowed completion time when the scram capability of the control rod was indeterminate, and therefore required to be declared inoperable. In accordance with IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the finding was of very low safety significance (Green) because it did not affect multiple automatic reactor shutdown functions, did not involve an unintentional positive reactivity addition, and did not result in inability to control changes in reactivity during crew operations. The finding had a cross-cutting aspect in the area of Human Performance, Decision Making, because, given industry operating experience (OE) that cessation of the SSPV buzzing sound was a possible indication of a condition that would prevent the SSPV from performing its safety function, Entergy staff did not communicate to on-shift Operations Department personnel the need to promptly declare control rod 30-11 inoperable if this condition were to occur [H.1(c)]. (Section 1R15)

- Green. A self-revealing finding (FIN) was identified for a loss of decay heat removal (DHR) during refueling outage 20 (R20) that was the result of inadequately remediated DHR system degradation. Specifically, prior to using the system during R20, Entergy did not clean scale buildup in the DHR secondary cooling loop heat exchangers (HXs) causing low secondary system pressure, and Entergy did not address the resultant reduction in margin to the primary cooling loop pump automatic shutdown on low primary-to-secondary differential pressure. As a result, a spurious automatic DHR system shutdown occurred while it was functioning as the alternate method of DHR in place of residual heat removal (RHR) shutdown cooling. Entergy's corrective actions included restarting DHR and initiating condition report CR-JAF-2012-06934. Entergy also initiated actions to evaluate corrective measures such as modifying the differential pressure trip, adding secondary loop water chemistry treatment, and cleaning of the HXs.

  This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, there was an unplanned shutdown of the DHR system for about 50 minutes when it was providing the shutdown cooling function. The inspectors determined the significance of the finding using IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process." Per Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for both PWRs [pressurized water reactors] and BWRs [boiling water reactors]," Checklist 7, "BWR Refueling Operation with RCS Level > 23'," this finding impacted checklist item I.C, because at the time of the event the DHR system was functioning as the alternate method of DHR in place of RHR shutdown cooling. The finding was determined to be of very low safety significance (Green) because the finding did not require a quantitative assessment as described in checklist 7 of Attachment 1 to Appendix G, because checklist item I.C. is not listed as requiring phase 2 or 3 analysis, and the finding did not constitute a loss of control event per Appendix G, Table 1. The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution area, Corrective Action Program component, because Entergy staff did not take appropriate corrective actions to address the adverse trend in DHR system performance [P.1(d)]. (Section 4OA2)

REPORT DETAILS

Summary of Plant Status

James A. FitzPatrick Nuclear Power Plant (FitzPatrick) began the inspection period at 100 percent power. On May 1, 2013, operators reduced power to 60 percent to conduct a control rod sequence exchange, perform single rod scram time testing and control blade interference testing, perform main condenser waterbox flushes, and perform main turbine valve testing. Operators restored power to 100 percent the following day. On May 4, operators reduced power to 75 percent to isolate the B-1 waterbox due to main condenser tube leakage, and the following day, further reduced power to 50 percent to identify and plug the leaking tube. Operators restored power to 100 percent on May 6, and subsequently reduced power to 70 percent for a control rod pattern adjustment. During power ascension the following day, indications of main condenser tube leakage from one of the 'A' water boxes caused operators to reduce power to 50 percent to identify and plug the leaking tube. Operators restored power to 100 percent on May 8. On May 9, operators reduced power to 70 percent for a control rod pattern adjustment and restored power to 100 percent later that day. On May 17, operators reduced power to 85 percent to scram time control rod 10-15 for post-maintenance testing, and restored power to 100 percent later that day. On May 24, operators reduced power to 50 percent to identify and plug leaking main condenser tubes. Operators restored power to 100 percent the following day. On May 26, operators reduced power to 70 percent for a control rod pattern adjustment and restored power to 100 percent later that day. On June 15, operators reduced power to approximately 17 percent and removed the main generator from service to disconnect one of the two main transformers (71T-1B) to investigate evidence of electrical component degradation. Operators reconnected the main generator to the grid through the remaining main transformer on June 17 and raised reactor power to the maximum capacity of the transformer, approximately 54 percent. On June 22, operators reduced power to approximately 17 percent and removed the main generator from service to restore 71T-1B to service following repair. Operators reconnected the main generator to the grid on June 23 and restored power to 100 percent on June 24. Later that day, operators reduced power to 75 percent to isolate the 'A-1' waterbox due to main condenser tube leakage, and the following day, further reduced power to 50 percent to identify and plug leaking tubes. Operators restored power to 100 percent on June 26. On June 27, operators reduced power to 70 percent for a control rod pattern adjustment and restored power to 100 percent later that day. The plant remained at or near 100 percent power for the remainder of the inspection period.

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 emergency service water (ESW) and the emergency diesel generator (EDG) room ventilation systems. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), TSs, control room logs, and the corrective action program (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 (AC) 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 AC power system 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 condition reports and walking down portions of the offsite and AC power systems including the transformer yard and the 115 kilovolt (kV) switchyard.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns (71111.04 - 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 'B' and 'D' EDGs while the 'C' EDG was inoperable for planned maintenance on April 24, 2013

- ‘A’ and ‘C’ EDGs while the ‘B’ EDG was inoperable for planned maintenance on May 7, 2013
- ‘A’ ESW while the ‘B’ EDG was inoperable for planned maintenance on May 7, 2013

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, condition reports, 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.

- ‘A’ train EDG and switchgear rooms, fire area/zones V/EG-1, EG-2, and EG-5, on April 17, 2013
- ‘B’ train EDG and switchgear rooms, fire area/zones VI/EG-3, EG-4, and EG-6 , on April 17, 2013
- West cable tunnel, fire area/zone IC/CT-1, on May 16, 2013
- Reactor building 300 foot elevation, fire area/zones, VIII/RB-1C, IX/RB-1A, and X/RB-1B, on May 29, 2013
- Reactor building west crescent area, fire area/zone XVIII/RB-1W, on June 14, 2013

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07A - 1 sample)

a. Inspection Scope

The inspectors reviewed the 'B' EDG jacket water HX to determine its readiness and availability to perform its safety functions. This HX is cooled by the ESW system. The inspectors reviewed the design basis for the component and verified Entergy's commitments to NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." The inspectors observed portions of Entergy staff's inspection of this HX on May 7, 2013, and reviewed the results of the eddy current testing performed. The inspectors also discussed the results of these inspections with the responsible HX program engineer. The inspectors verified that Entergy staff initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the HX did not exceed the maximum amount allowed.

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 a licensed operator simulator exam on April 30, 2013, which included a security threat in the Owner Controlled Area, a steam leak from the high-pressure coolant injection (HPCI) system, a scram with failure of the control rods to insert, and an emergency depressurization. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors also verified the accuracy and timeliness of the emergency classifications made by the shift manager. 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 May 1, 2013, the inspectors observed control room operators during a power reduction to 60 percent for the performance of a control rod sequence exchange, single rod scram time testing, control blade interference testing, main condenser waterbox flushes, and main turbine valve testing. 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 Annual Review of Licensed Operator Requalification Examination Results (71111.11A - 1 sample)

a. Inspection Scope

The inspectors conducted an in-office review of results of annual operating tests and comprehensive written examinations for 2013 administered by Entergy. The inspectors assessed whether pass rates were consistent with the guidance of IMC 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)." The inspectors verified that:

- Individual pass rate on the dynamic simulator test was greater than 80 percent (pass rate was 94.6 percent)
- Individual pass rate on the job performance measures of the operating examination was greater than 80 percent (pass rate was 100 percent)
- Individual pass rate on the written examination was greater than 80 percent (pass rate was 97.3 percent)
- More than 80 percent of the individuals passed all portions of the requalification examination (pass rate was 91.9 percent)
- Crew pass rate was greater than 80 percent (pass rate was 85.7 percent)

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q - 2 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, and

maintenance rule basis documents to ensure that Entergy 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 Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65 and verified that the (a)(2) performance criteria established by Entergy staff was reasonable. As applicable, 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.

- RHR
- Automatic depressurization

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 5 samples)

a. Inspection Scope

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

- Emergent maintenance on the 'B' low-pressure coolant injection (LPCI) independent power supply inverter during the week of April 15, 2013
- Planned maintenance on the 'C' EDG during the week of April 22, 2013
- Reactor core isolation cooling system quarterly surveillance test and control rod sequence exchange during the week of April 29, 2013
- Planned maintenance on the 'B' EDG during the week of May 7, 2013
- Emergent maintenance on the ventilation damper for the 'A' and 'C' EDGs on May 21, 2013

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-2013-01738, ESW system piping for the west crescent unit coolers exceeded its calculated remaining service life due to excessive pipe wall thinning on April 2, 2013
- CR-JAF-2013-01914, buzzing sound from the SSPV on the associated hydraulic control unit (HCU) of control rod 30-11 on April 9, 2013
- CR-JAF-2013-02149, cessation of buzzing sound from the SSPV on the associated HCU of control rod 30-11 on April 24, 2013
- CR-JAF-2013-03131, relay room ventilation 'B' train air handling unit motor failed with no air conditioning unit available for the 'A' train on June 13, 2013
- CR-JAF-2013-03018, 'C' EDG failed to shut down remotely on June 17, 2013

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'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. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

Introduction. The inspectors identified a NCV of TS 3.1.3, "Control Rod Operability," because Entergy operators did not take the required actions within the allowed completion time in response to indication that the scram capability of a control rod was indeterminate. Specifically, when available information concerning the SSPVs required control rod 30-11 to be declared inoperable, operators did not declare the control rod inoperable, did not fully insert the control rod within three hours, and did not disarm the associated control rod drive within four hours, as required by TS 3.1.3.C.

Description. Early in 2013, industry OE became available that described a failure mode for a particular model of SSPVs (the type used at FitzPatrick, two solenoid valves in a common housing) that would inhibit the scram function of the associated HCU. The onset of this failure mode is evidenced by development of a buzzing sound, caused by the solenoid armature impacting the pilot valve seat at double the AC power frequency. This condition may result in deformation of the armature, which could cause it to become bound such that it would not change state on demand; that is, it would not vent air from its associated scram valve and the control rod would not insert.

If an SSPV were to develop a buzzing sound which then ceased, scram testing of that rod would be required to demonstrate whether or not this mode of failure had occurred. In addition, to replace an SSPV the associated control rod must first be fully inserted which is not desirable long term for fuel management, and after replacement, acceptance testing consists of scram time testing which can only be performed at reduced power. As a result, a licensee may choose to defer replacement of an SSPV producing a buzzing sound until a power reduction is required for additional reasons.

In response to this OE, Entergy engineering personnel examined HCUs for the condition and identified a buzzing sound on the SSPVs on HCU 42-35 on March 20, 2013. A power reduction to 50 percent was required due to main condenser tube leakage on March 22, 2013. During this power reduction, the HCU 42-35 SSPVs were also replaced and tested. From the time of identification on March 20 until replacement on March 22, the HCU 42-35 SSPVs continuously produced a buzzing sound.

On April 9, 2013, Entergy engineering personnel identified a buzzing sound on the SSPVs on HCU 30-11. Since there were no near-term power reductions scheduled, operations personnel generated instructions for periodic monitoring of the HCU 30-11 SSPVs. Operations Shift Standing Order (OSSO) 2013-009, "HCU 30-11 SSPV Buzzing," became effective on April 12, 2013, and specified daily monitoring of: 1) the SSPV solenoid body temperatures, 2) any change in the buzzing sound, and 3) any residue noted at the solenoid exhaust port. Action levels were specified for each monitored parameter, which if met or exceeded, were to prompt notification of the Shift Manager that a new condition report should be generated to re-evaluate solenoid operability.

At 11:13 p.m. on April 23, 2013, an operator performed the OSSO 2013-009 monitoring of HCU 30-11 and noted that the SSPVs no longer produced a buzzing sound. As required by the OSSO, CR-JAF-2013-02149 was initiated at 4:46 a.m. the following day to re-evaluate operability. At 12:45 p.m., engineering staff reported to the Shift Manager that a recommendation of operability could not be supported because the ceased buzzing sound indicated that the SSPVs may not be able to change state to perform their safety function. The Shift Manager declared control rod 30-11 inoperable and, at 1:33 p.m., 14 hours and 20 minutes after identification of the ceased buzzing sound on the SSPVs, operators fully inserted and electrically disarmed the control rod. Entergy subsequently removed the SSPVs from HCU 30-11 without scram time testing, which may have disturbed a bound condition, and tested the SSPVs satisfactorily.

TS 3.1.3.C, "One or more control rods inoperable for reasons other than Condition A or B [withdrawn control rods stuck]," requires that the inoperable control rod be fully inserted within three hours and that the associated control rod drive be disarmed within four hours. TS 3.1.3.E requires that, if the required action and associated completion time of condition C are not met, the reactor be in Mode 3, i.e. shutdown, within 12 hours. The inspectors reviewed the operability determination that was generated for CR-JAF-2013-02149 and noted that no new information that affected the outcome of the operability determination had become available after the buzzing sound on the SSPVs ceased. Therefore, the determination that operability could not be supported without scram time testing and the direction to declare the associated control rod inoperable if

the buzzing sound on the SSPVs ceased could reasonably have been made and included in OSSO 2013-009 prior to this event. Therefore, the TS 3.1.3.C required actions could reasonably have been satisfied within the specified completion times.

The inspectors noted that the actions of TS 3.1.3.C were completed within the allowed completion time of TS 3.1.3.E, which requires that the reactor be in Mode 3 within 12 hours of failure to complete TS 3.1.3.C, and therefore, that the limiting condition for operation (LCO) 3.1.3 was still met. However, NRC Enforcement Manual Section 7.1 provides guidance for actions involving inoperable equipment. It notes that a violation would exist in the case where information was available to the licensee at the time the condition was identified, such that the licensee could reasonably perform the required actions within the allowed completion time and does not do so. The inspectors also noted that subsequent testing demonstrating the HCU 30-11 SSPVs to be operable would not invalidate this violation. Specifically, at the time of the event, declaring control rod 30-11 inoperable was the only technically justifiable action that could have been taken prior to scram time testing to demonstrate operability.

Entergy's corrective actions included fully inserting and electrically disarming control rod 30-11, replacing the scram solenoid pilot valves, revising the instructions to operators, briefing operators on this issue, and initiating condition report CR-JAF-2013-02149.

Analysis. The inspectors determined that Entergy personnel's failure to take the required actions within the TS allowed completion time, in response to indication that the scram capability of control rod 30-11 was indeterminate, was a performance deficiency that was reasonably within Entergy's ability to foresee and correct and should have been prevented. This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, operators did not fully insert and electrically disarm control rod 30-11 within the TS allowed completion time when the scram capability of the control rod was indeterminate, and therefore required to be declared inoperable.

In accordance with IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the finding was of very low safety significance (Green) because it did not affect multiple automatic reactor shutdown functions, did not involve an unintentional positive reactivity addition, and did not result in inability to control changes in reactivity during crew operations.

The finding had a cross-cutting aspect in the area of Human Performance, Decision Making, because given industry OE that cessation of the SSPV buzzing sound was reasonable indication of a condition that would prevent the SSPV from performing its safety function, Entergy staff did not communicate to on-shift Operations Department personnel the need to promptly declare control rod 30-11 inoperable if this condition were to occur [H.1(c)].

Enforcement. TS 3.1.3.C, "One or more control rods inoperable for reasons other than Condition A [One withdrawn control rod stuck] or B [Two or more withdrawn control rods

stuck]," while the plant is in Mode 1 or 2, requires that the inoperable control rod be fully inserted within three hours and that the associated control rod drive be disarmed within four hours. Contrary to the above, from 11:13 p.m. on April 23, 2013, to 1:33 pm on April 24, 2013, while the plant was in Mode 1, operators did not declare control rod 30-11 inoperable, did not fully insert the inoperable control rod within the required three hours, and did not disarm the associated control rod drive within the required four hours, a period of 14 hours and 20 minutes after the inoperable condition was identified. Entergy's immediate corrective actions included fully inserting and electrically disarming control rod 30-11 and initiating condition report CR-JAF-2013-02149. Because this issue was of very low safety significance (Green) and Entergy personnel entered the issue into their CAP, this finding is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000333/2013003-01, TS Actions for Inoperable Control Rod Not Performed Within the TS Allowed Completion Time)**

1R18 Plant Modifications (71111.18 - 1 sample)

Temporary Modification

a. Inspection Scope

During this inspection period, gas sampling of main transformer 71T-1B showed signs of transformer degradation. Temporary modification EC [engineering change] 44997, "Operate Without 71T-1B," was developed so that the plant could be taken off line to electrically disconnect 71T-1B from the transmission system, with power operation to then resume with the one remaining main transformer, 71T-1A, in service. This allowed continued operation at approximately 50 percent of rated plant power during 71T-1B troubleshooting. The inspectors reviewed EC 44997 to verify that the design bases, licensing bases, and performance capability of affected systems were not degraded by the modification. The inspectors reviewed the 10 CFR 50.59 documentation and discussed procedure changes with operators to verify they were knowledgeable of the operational limitations imposed by the modification.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 - 5 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) 52478423 and 00348056 to repair the 'B' LPCI independent power supply inverter on April 18, 2013
- WO 00329446 to replace valve 03SOV-120 (withdraw settle solenoid operated valve) on HCU 22-35 on May 1, 2013
- WO 00347636 to replace HCU 30-11 SSPV on May 1, 2013
- WO 52378807 to open, clean, and inspect the 'B' EDG jacket water HX on May 12, 2013
- WO 52379119 to perform 'B' EDG electrical preventive maintenance on May 13, 2013

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 - 6 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 TS, the UFSAR, and Entergy 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-3PB, "Core Spray Loop B Quarterly Operability Test (IST)," on April 11, 2013
- ST-3PA, "Core Spray Loop A Quarterly Surveillance Test (IST)," on April 29, 2013
- ST-4N, "HPCI Quick-Start, Inservice, and Transient Monitoring Test (IST)," on May 13, 2013
- ST-2AL, "RHR Loop A Quarterly Operability Test (IST)," on May 24, 2013
- ISP-175A3, "Reactor Pressure Anticipated Transient Without Scram Instrument Functional Test/Calibration Analog Transmitter Trip System," on June 20, 2013
- SP-01.02, "Reactor Water Sampling and Analysis," on June 24, 2013

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 - 1 sample)

a. Inspection Scope

The Office of Nuclear Security and Incident Response headquarters staff performed an in-office review of the latest revisions of various emergency plan implementing procedures and the Emergency Plan located under ADAMS accession number ML13063A103 as listed in the Attachment.

Entergy determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Emergency Plan, and that the revised Emergency Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of Entergy-generated changes; therefore, this revision is subject to future inspection.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 - 2 samples)

.1 Emergency Preparedness Drill Observations

a. Inspection Scope

The inspectors evaluated the conduct of a routine Entergy emergency preparedness drill on May 15, 2013, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator, technical support center, and emergency operating facility to determine whether the event classification, notifications, and protection action recommendations were performed in accordance with procedures. The inspectors also attended the facility and station drill critiques to compare inspection observations with those identified by Entergy staff in order to evaluate Entergy's critique and to verify whether the Entergy staff was properly identifying weaknesses and entering them into the CAP.

b. Findings

No findings were identified.

.2 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for FitzPatrick licensed operators on April 30, 2013, which required emergency plan implementation by an operations crew. Entergy planned for this evolution to be evaluated and included in performance indicator 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: Public Radiation Safety and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

The inspectors reviewed and assessed Entergy staff's performance in assessing the radiological hazards and exposure control in the workplace. The inspectors used the requirements in 10 CFR 20 and guidance in Regulatory Guide (RG) 8.38, "Control of Access to High and Very High Radiation Areas for Nuclear Plants," TSs, and Entergy procedures required by TSs as criteria for determining compliance.

Radiological Hazard Assessment

The inspectors determined there had been no changes to plant operations since the last inspection that may result in a significant new radiological hazard for onsite workers or members of the public.

The inspectors reviewed the last two radiological surveys from each elevation of the reactor building, the reactor water cleanup pump rooms, and the radwaste facility. The inspectors evaluated whether the thoroughness and frequency of the surveys were appropriate for the given radiological hazard. The inspectors conducted walkdowns and independent radiation measurements in the facility, including radioactive waste processing, storage, and handling areas to evaluate material and radiological conditions. The inspectors selected a core spray pump surveillance as a risk-significant work activity that involved exposure to radiation. For this work activity, the inspectors assessed whether the pre-work surveys performed were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the radiological survey program to determine if radiological hazards were

properly identified (e.g., discrete radioactive hot particles, transuranics and hard to detect nuclides in air samples, transient dose rates and large gradients in radiation dose rates).

The inspectors observed work in potential airborne radioactivity areas and evaluated whether the air samples from the reactor cavity decontamination work activity were representative of the breathing air zone and were properly evaluated. The inspectors evaluated whether continuous air monitors were located in low background radiation areas and were representative of actual work areas. The inspectors evaluated the Entergy program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

Instructions to Workers

The inspectors reviewed the following radiation work permits (RWPs) used to access high radiation areas (HRAs) and evaluated if the specified work control instructions and control barriers were consistent with TS requirements for HRA:

- 20120512 Drywell In Service Inspection (ISI)
- 20120515 Remove/Replace Safety Relief Valve (SRV) Bodies
- 20120929 Reactor Water Clean Up (RWCU) Piping Replacement (12RV-210 and 10MOV-68)

For these RWPs, the inspectors assessed whether allowable stay times or permissible dose for radiologically significant work under each RWP were clearly identified. The inspectors evaluated whether electronic personal dosimeter (EPD) alarm set-points were in conformance with survey indications and plant procedural requirements.

The inspectors reviewed three occurrences where a worker's EPD alarmed. The inspectors evaluated whether workers responded appropriately to the alarm. The inspectors assessed whether the issue was included in the corrective action program and whether compensatory dose evaluations were conducted as appropriate.

For work activities that could suddenly and severely increase radiological conditions, the inspectors assessed the procedure used to inform workers of these changes that could significantly impact their occupational dose.

Contamination and Radioactive Material Control

The inspectors evaluated whether any recent transactions involving nationally tracked sources were reported as required.

Radiological Hazards Control and Work Coverage

The inspectors evaluated ambient radiological conditions and performed independent radiation measurements during walkdowns of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, RWPs, and associated worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, radiation protection job coverage and contamination controls. The inspectors evaluated Entergy staff's use of EPDs in high noise areas that were also HRAs or locked high radiation areas (LHRAs). The inspectors assessed whether radiation monitoring devices were placed on individuals in the location of highest expected dose or that an NRC-approved method of determining effective dose equivalent was properly implemented.

The inspectors reviewed RWP 20120701 for work within an airborne radioactivity area with the potential for individual worker internal exposures. For this RWP, the inspectors evaluated airborne radioactive material controls and monitoring, including potential for significant airborne levels. The inspectors assessed applicable containment barrier integrity and the operation of temporary high efficiency particulate air ventilation systems.

The inspectors examined the posting and physical controls for selected HRAs, LHRAs and very high radiation areas (VHRAs) to verify conformance with the occupational performance indicator.

Radiation Worker Performance

The inspectors observed the performance of radiation workers with respect to stated radiation protection (RP) work requirements. The inspectors assessed whether workers were aware of the radiological conditions in their workplace and the RWP controls/limits established, and whether their behavior reflected the level of radiological hazards present.

The inspectors reviewed three radiological condition reports since the last inspection that attributed the cause of the event to human performance errors. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by Entergy to resolve the reported problems.

RP Technician Proficiency

The inspectors observed the performance of the RP technicians with respect to controlling radiation work. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace and the RWP controls/limits, and whether their behavior was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspectors reviewed two radiological condition reports since the last inspection that attributed the cause of the events to RP technician error. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken to resolve the reported problems.

b. Findings

No findings were identified.

2RS2 Occupational As Low As Is Reasonably Achievable Planning and Controls (71124.02 – 1 sample)

a. Inspection Scope

The inspectors assessed performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspectors used the requirements in 10 CFR 20, RG 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Plants will be ALARA," RG 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposure ALARA," TSs, and Entergy's procedures for determining compliance.

Radiological Work Planning

The inspectors selected the following work activities that had the highest exposure significance:

- 20120512 Drywell ISI
- 20120515 Remove/Replace SRV Valve Bodies
- 20120701 Reactor Disassembly/Reassembly/Install 360 Platform
- 20120702 Refuel/Defuel
- 20120929 RWCU Work
- 20120956 Reactor Building RHR Service Water Piping Replacement

The inspectors reviewed the ALARA evaluations, exposure estimates, and exposure reduction requirements. The inspectors evaluated whether Entergy's ALARA assessment had taken into account decreased worker efficiency from use of respiratory protective devices, the use of remote technologies, and the use of industry OE and plant-specific lessons learned. The inspectors assessed the integration of ALARA requirements into work procedure and RWP documents.

The inspectors compared the results achieved (dose rate reductions, actual dose) with the intended dose established in Entergy's ALARA planning for these work activities. The inspectors compared the person-hour estimates provided by maintenance planning and other groups to the RP group with actual person-hours for the work activity, and evaluated the accuracy of these time estimates. The inspectors assessed the reasons for any inconsistencies between intended and actual work activity doses.

The inspectors determined whether post-job reviews were conducted to identify lessons learned. If problems were identified, the inspectors verified that worker suggestions for improving dose and contamination reduction techniques were entered into Entergy's CAP.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors verified in-plant airborne concentrations were being controlled consistent with ALARA principles and the use of respiratory protection devices. The inspectors used the requirements in 10 CFR 20, the guidance in RG 8.15, "Acceptable Programs for Respiratory Protection," RG 8.25, "Air Sampling in the Workplace," NUREG-0041, "Manual of Respiratory Protection Against Airborne Radioactive Material," TSs, and Entergy's procedures for determining compliance.

Use of Respiratory Protection Devices

The inspectors selected two work activities where respiratory protection devices were used to limit the intake of radioactive materials, and assessed whether Entergy performed an evaluation concluding that further engineering controls were not practical and that the use of respirators was ALARA. The inspectors also evaluated whether Entergy had established means (such as routine bioassay) to determine if the level of protection (protection factor) provided by the respiratory protection devices during use was effective.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04 – 1 sample)

a. Inspection Scope

The inspectors verified that occupational dose was appropriately monitored, assessed, and reported by Entergy. The inspectors used the requirements in 10 CFR 20, the guidance in RG 8.13, "Instructions Concerning Prenatal Radiation Exposures," RG 8.36, "Radiation Dose to Embryo Fetus," RG 8.40, "Methods for Measuring Effective Dose Equivalent from External Exposure," TSs, and Entergy's procedures for determining compliance.

Internal Dosimetry - Routine Bioassay

The inspectors reviewed Entergy's evaluation for the use of portal radiation monitors as a passive monitoring system. The inspectors assessed whether instrument minimum detectable activities were adequate to determine the potential for internally deposited radionuclides in order to prompt an investigation.

Special Dosimetric Situations - Declared Pregnant Workers

The inspectors assessed whether Entergy informed workers of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for declaring a pregnancy.

The inspectors reviewed the records for one individual who had declared pregnancy during the current assessment period and evaluated whether the radiological monitoring program (internal and external) for declared pregnant workers was technically adequate to assess the dose to the embryo/fetus. The inspectors reviewed exposure results and monitoring controls that were implemented.

Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures

The inspectors reviewed Entergy's method for monitoring external dose in non-uniform radiation fields or where large dose gradients exist. The inspectors evaluated Entergy's criteria for determining when the use of multi-badging was to be implemented.

The inspectors reviewed selected dose assessments performed using multi-badging to evaluate whether the assessment was performed consistent with procedures and dosimetry standards.

Shallow Dose Equivalent

Entergy has not documented any dose assessments for shallow dose equivalent during this inspection period. The inspectors evaluated the method (e.g., VARSKIN or similar code) for calculating shallow dose equivalent from distributed skin contamination or discrete radioactive particles.

Neutron Dose Assessment

The inspectors evaluated the neutron dosimetry program, including dosimeter types and radiation survey instrumentation.

The inspectors reviewed two neutron exposure occurrences and assessed whether (a) dosimetry and/or instrumentation was appropriate for the expected neutron spectra, (b) there was sufficient sensitivity for low dose and/or dose rate measurement, and (c) neutron dosimetry and/or neutron detection instruments were properly calibrated. The inspectors also assessed whether interference by gamma radiation had been accounted for in the calibration and whether time and motion evaluations were representative of actual neutron exposure events, as applicable.

Assigning Dose of Record

For the special dosimetry situations reviewed in this section, the inspectors assessed how Entergy assigned dose of record for total effective dose equivalent, shallow dose equivalent, and lens dose equivalent.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (71124.07 – 1 sample)

a. Inspection Scope

The inspectors verified that the radiological environmental monitoring program (REMP) quantified the impact of radioactive effluent releases to the environment. The inspectors used the requirements in 10 CFR 20, 10 CFR 50, Appendix A, Criterion 60, "Control of Release of Radioactivity to the Environment," 10 CFR 50, Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion As Low as is Reasonably Achievable for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents," 40 CFR 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," 40 CFR 141, "Maximum Contaminant Levels for Radionuclides," the guidance in RG 1.23, "Meteorological Measurements Program for Nuclear Power Plants," RG 4.1, "Radiological Environmental Monitoring Programs for Nuclear Power Plants," RG 4.15, "Quality Assurance for Radiological Monitoring Programs," NUREG 1302, "Offsite Dose Calculation Manual (ODCM) Guidance: Standard Radiological Effluent Controls," applicable industry standards, and Entergy's procedures for determining compliance.

Inspection Planning

The inspectors reviewed Entergy's annual radiological environmental operating reports for 2011 and 2012, and the results of Entergy's assessments since the last inspection to verify that the REMP was implemented and reported in accordance with requirements. This review included changes to the ODCM with respect to environmental monitoring, sampling locations, monitoring and measurement frequencies, land use census, inter-laboratory comparison program, and analysis of data.

The inspectors reviewed FitzPatrick's ODCM to identify locations of environmental monitoring stations.

The inspectors reviewed FitzPatrick's UFSAR for information regarding the environmental monitoring program and meteorological monitoring instrumentation.

The inspectors reviewed quality assurance audits and technical evaluations performed on the vendor analytical laboratory program.

The inspectors reviewed Entergy's annual radioactive effluent release reports, and the most recent results from waste stream analysis to determine if Entergy staff were sampling and analyzing for the predominant radionuclides likely to be released in effluents.

Site/Environmental Inspection

The inspectors walked down three air sampling stations and three thermoluminescent dosimeter (TLD) monitoring stations.

For the air samplers and TLD stations selected, the inspectors reviewed the calibration and maintenance records. Additionally, the review included the calibration and maintenance records of one composite water sampler.

The inspectors verified the performance of compensatory sampling upon loss of a required sampling station.

The inspectors observed the preparation and analysis of milk samples and simulation of soil and vegetation sampling to verify that environmental sampling was representative of the release pathways as specified in the ODCM and that sampling techniques were in accordance with procedures.

Based on direct observation and review of records, the inspectors assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with procedures and that readout values were commensurate with the values displayed in the control room.

The inspectors evaluated whether missed and/or anomalous environmental samples were identified and reported in the annual radiological environmental operating reports. The inspectors selected three events that involved a missed sample, inoperable sampler, lost TLD, or anomalous measurement to verify that Entergy had identified the cause and had implemented corrective actions. The inspectors reviewed the assessment of any sample results detected above the lower limits of detection and reviewed Entergy's evaluation of associated radioactive effluent release data.

The inspectors selected three SSCs where there was a credible mechanism for radioactive material to reach ground water. The inspectors assessed whether Entergy staff had implemented a sampling and monitoring program sufficient to provide early detection of leakage from these SSCs.

The inspectors evaluated whether decommissioning records of leaks, spills, and environmental remediation were retained in the 10 CFR 50.75(g) decommissioning file.

The inspectors reviewed any significant changes made to the ODCM as the result of changes to the land census, long-term meteorological conditions (three year average), or modifications to the sampler stations since the last inspection. The inspectors reviewed technical justifications for any changed sampling locations to verify that the changes did not affect the ability to monitor the impacts of radioactive effluent releases on the environment.

The inspectors assessed whether the detection sensitivities for environmental samples were below the lower limits of detection specified in the ODCM. The inspectors reviewed quality control charts for laboratory radiation measurement instruments and actions taken for degrading detector performance.

The inspectors reviewed results of the inter-laboratory and intra-laboratory comparison program to verify the quality of environmental sample analyses performed by Entergy.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Reactor Coolant System (RCS) Specific Activity and RCS Leak Rate (2 samples)

a. Inspection Scope

The inspectors reviewed Entergy's submittals for the RCS specific activity and RCS leak rate performance indicators for the period of April 1, 2012, through March 31, 2013. To determine the accuracy of the performance indicator 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 6. 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 performance indicator. Additionally, the inspectors observed surveillance activities that determined the RCS identified leakage rate (first quarter 2013), and chemistry personnel taking and analyzing an RCS sample.

b. Findings

No findings were identified.

.2 Radiological Effluent TS/ODCM Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

The inspectors reviewed Entergy's submittals for the radiological effluent TS/ODCM radiological effluent occurrences performance indicator for the period of January 1, 2012, through December 31, 2012. The inspectors used performance indicator definitions and guidance contained in NEI Document 99-02 to determine if the performance indicator data were reported properly during this period.

The inspectors reviewed Entergy's corrective action report database and selected individual reports generated since this indicator was last reviewed 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 for the period of January 1, 2012, through December 31, 2012, to determine if indicator results were accurately reported. The inspectors also reviewed Entergy's methods for quantifying gaseous and liquid effluents and determining effluent dose.

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 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 condition report screening meetings.

The inspectors evaluated whether problems associated with radiation monitoring, exposure control, ALARA planning and controls, control and mitigation of in-plant airborne radioactivity, occupational dose assessment, and the REMP were being identified by Entergy staff at an appropriate threshold and were properly addressed for resolution in their CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by Entergy staff that involved radiation monitoring and exposure controls. The inspectors assessed Entergy's process for applying OE.

b. Findings

No findings were identified.

.2 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, performance indicators, system health reports, and CAP backlogs. The inspectors also reviewed Entergy's CAP database for the first and second quarters of 2013 to assess condition reports written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRC's daily condition report review (Section 4OA2.1). The inspectors reviewed Entergy's quarterly trend report for the first quarter of 2013, conducted under EN-LI-121, "Entergy Trending Process," 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 condition reports generated over the course of the past two quarters by departments that provide input to the quarterly trend reports. 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. However, the inspectors noted several instances where issue trending was not utilized and may have been useful. For example, there were at least nine condition reports documenting instances of emergency preparedness communications equipment malfunctions during the past six months. Although the individual issues were addressed through the CAP, the inspectors saw no evidence that they had collectively been evaluated for a trend. This was a repeat observation from 2012. Also, the inspectors reviewed CR-JAF-2013-02232, which documented a potential emerging trend for seven instances of issues involving 4160 volt circuit breakers since March 1, 2013. The trend analysis that was produced to analyze the condition found that the problems were primarily due to hardened grease or racking issues, and went on to state, ". . . these issues are fairly consistent over the last 5 years, and do not appear to represent a trend." Per EN-LI-121, an emerging trend is, "A series of related problems indicating a shift in frequency or change in the pattern of events, activities, or causes over time such that action may be appropriate." The inspectors considered that the significant increase in incidents since March 1, 2013, represented an emerging trend which was masked by analysis of a much longer period. Given the high safety significance of 4160 volt circuit breakers in many applications, the inspectors considered that, while not a violation of regulatory requirements, this was a missed opportunity to effectively use all of the tools available in the CAP.

.3 Annual Sample: Loss of Decay Heat Removal during Refueling Outage 20

a. Inspection Scope

The inspectors performed an in-depth review of Entergy's cause analysis and corrective actions associated with CR-JAF-2012-06934 concerning a loss of the DHR system during refueling outage 20 (R20). Specifically, on October 7, 2012, while RHR shutdown cooling was secured and the DHR system was in service, the running DHR primary pump, 32P-1B, shut down. Operators responded in accordance with AOP-68A, "Loss of Decay Heat Removal." However, the operators were unable to identify a reason for the pump shutdown. Approximately 50 minutes after 32P-1B had tripped, operators successfully restarted the pump and restored DHR to service. An apparent cause evaluation was performed to identify the most likely cause of the pump trip.

The inspectors assessed Entergy's problem identification threshold, cause analyses, extent-of-condition reviews, compensatory actions, and the prioritization and timeliness of Entergy's corrective actions to determine whether Entergy staff was appropriately

identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Entergy's CAP and 10 CFR 50, Appendix B.

b. Findings and Observations

Introduction. A self-revealing Green finding was identified for a loss of DHR during R20 that was the result of inadequately remediated DHR system degradation. Specifically, prior to using the system during R20, Entergy did not clean scale buildup in the DHR HXs causing low secondary system pressure, and Entergy did not address the resultant reduction in margin to the primary cooling loop pump automatic shutdown on low primary-to-secondary differential pressure. As a result, a spurious automatic DHR system shutdown occurred while it was functioning as the alternate method of DHR in place of RHR shutdown cooling.

Description. The DHR system was installed as a plant modification in 1996. The purpose of the system is to provide an alternate means of removing heat from the spent fuel pool (SFP) and the reactor pressure vessel when the reactor cavity is flooded and the SFP gates are removed. The system consists of a primary cooling loop which is connected to the SFP, and a secondary cooling loop supplied by city water, which transfers heat from the primary cooling loop through plate-type HXs and rejects it to the environment through exterior cooling towers. The DHR system is used during refueling outages to allow RHR shutdown cooling to be removed from service for maintenance and testing. Although DHR is not a safety class system, TS 3.9.7 bases concerning requirements for use of RHR shutdown cooling during refueling operations allows use of the DHR system as a method for alternate DHR when RHR shutdown cooling is not operable.

The original source of water to the secondary cooling loop was the demineralized water system. In 2006, the secondary cooling loop was changed to the city water system due to radiological contamination. However, city water contains higher concentrations of dissolved minerals and chemicals that can cause corrosion and scale production. Additionally, chemical concentrations in the secondary cooling loop are increased by DHR system operation due to water evaporation from the cooling towers. Entergy's engineering staff concluded that acceptable water quality could be maintained using blowdown. Blowdown is a process to reduce chemical concentrations by discharging a portion of concentrated process water and replacing it with new water. However, extensive blowdown would exceed the capability of the site sewage treatment plant, and untreated blowdown to the lake would exceed state discharge permit limits. As a result, Entergy conducted fewer blowdowns, generally limited to either pH control or shutdown and draining of the DHR system.

Entergy performed DHR system testing prior to R20 and identified that secondary cooling loop flow rates were marginally acceptable for the 'A' loop and lower than required for the 'B' loop. The cause of the reduced flow was determined to be scale deposits on the secondary side plates of the DHR HXs as a result of insufficient use of blowdown. Engineering staff determined that secondary cooling loop flow reductions of

up to 10 percent would still provide adequate heat removal capability. So, Entergy decided not to clean the HXs prior to system use during R20.

To prevent HX leakage from resulting in a radioactive release to the environment, the DHR system operates with pressure in the secondary cooling loop higher than pressure in the primary cooling loop. If the differential pressure between the two loops gets too low (3 pounds per square inch differential), the primary cooling loop pump automatically shuts down. Since scale deposits in the secondary cooling loop reduced secondary loop pressure, the primary-to-secondary cooling loop differential pressure was also reduced by scale deposits.

On October 7, 2012, the reactor was in Mode 5 with the reactor cavity flooded and the SFP gates removed. RHR shutdown cooling was shutdown, and the DHR system was in service using the 'B' primary and secondary cooling loops. At approximately 6:50 a.m., control room operators were alerted to a potential problem with the DHR system when annunciator 09-3-1-9, "Fuel Pool Cool & Cln Up Trouble," alarmed. Investigation revealed that the 'B' DHR primary cooling loop pump was not running, and operators responded in accordance with AOP-68A, "Loss of Decay Heat Removal." However, the cause of the pump failure was not identified. Approximately 50 minutes later, operators restarted the 'B' DHR primary cooling loop pump and restored the DHR system to service.

Entergy determined that the lowered primary-to-secondary cooling loop differential pressure in combination with normal fluctuations in primary and secondary loop pressures actuated the differential pressure primary cooling loop pump automatic shutdown. The inspectors determined that Entergy failed to adhere to their performance standard, EN-LI-102, "Corrective Action Process," because Entergy staff used the CAP in accordance with EN-LI-102 to address the system performance deficiencies but failed to correct the conditions that led to this event. Additionally, EN-OU-108, "Shutdown Safety Management Program," states, "Shutdown Safety Goals will be defined as no shutdown safety events or near misses, minimizing the number of times plant conditions require risk to be elevated, minimizing the time spent in elevated risk, and no preventable unplanned loss of key safety functions." It goes on to define one of the key safety functions as DHR capability.

Entergy's corrective actions included restarting DHR and initiating condition report CR-JAF-2012-06934. Entergy also initiated actions to evaluate corrective measures such as modifying the differential pressure trip, adding secondary loop water chemistry treatment, and cleaning of the HXs.

Analysis. The inspectors determined that Entergy's failure to adequately remediate DHR system degradation by cleaning the HXs or adjusting the primary-to-secondary cooling loop differential pressure primary pump automatic shutdown setpoint to provide adequate margin against spurious trips was a performance deficiency that was reasonably within Entergy's ability to foresee and correct and should have been prevented. This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that

respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, there was an unplanned shutdown of the DHR system for about 50 minutes when it was providing the shutdown cooling function.

The inspectors determined the significance of the finding using IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process." Per Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for both PWRs [pressurized water reactors] and BWRs [boiling water reactors]," Checklist 7, "BWR Refueling Operation with RCS Level > 23'," this finding impacted checklist item I.C, because at the time of the event the DHR system was functioning as the alternate method of DHR in place of RHR shutdown cooling. The finding was determined to be of very low safety significance (Green) because the finding did not require a quantitative assessment as described in checklist 7 of Attachment 1 to Appendix G, because checklist item I.C. is not listed as requiring phase 2 or 3 analysis, and the finding did not constitute a loss of control event per Appendix G, Table 1.

The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution area, Corrective Action Program component, because Entergy staff did not take appropriate corrective actions to address the adverse trend in DHR system performance [P.1(d)].

Enforcement. This finding does not involve enforcement action because no violation of a regulatory requirement was identified. Because this finding does not involve a violation and is of very low safety significance (Green), it is identified as a finding. **FIN 05000333/2013003-02, Inadequate Corrective Action for DHR System Degradation Results in Loss of DHR During R20.**

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 - 3 samples)

.1 (Closed) Licensee Event Report (LER) 05000333/2012-007-00: Reactor Scram Caused by Main Turbine Emergency Trip Lockout Valve Failure

On November 4, 2012, with the plant operating at 100 percent power, the reactor scrammed due to a failure of the main turbine emergency lockout valve which caused the main turbine stop valves to close during turbine valve testing. When the stop valves were approximately 85 percent open, a reactor scram occurred as designed. This scram was documented in NRC Integrated Inspection Report 05000333/2012005. Entergy determined this event was reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) as it was a condition that resulted in an automatic actuation of the reactor protection system.

Entergy determined the cause of the emergency lockout valve failure was a manufacturing defect which was not within the staff's ability to foresee and correct. The inspectors determined Entergy's planned and completed corrective actions were commensurate with their safety significance. The inspectors did not identify any violations of NRC requirements. This LER is closed.

.2 (Closed) LER 05000333/2012-008-00: Automatic Reactor Shutdown Caused by a Fault in Main Transformer

At 3:56 a.m. on November 11, 2012, an automatic reactor scram occurred due to a fire in main transformer 71T-1A. The scram was uncomplicated; however, at 5:45 a.m., the Shift Manager declared a discretionary notification of unusual event (NOUE) based on the persistent fire. The fire was subsequently extinguished by the site fire brigade and local fire department personnel, and the NOUE was exited at 8:01 a.m.

Entergy determined that the cause of the transformer fire was an arcing fault, internal insulation breakdown, or both. As corrective action, 71T-1A was replaced, and inspection and testing was performed on other major electrical components that had been electrically connected to 71T-1A to verify that no damage had occurred.

The inspectors reviewed this event as discussed in NRC Integrated Inspection Report 05000333/2012005. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

.3 (Closed) LER 05000333/2012-009-00: Containment Atmosphere Dilution (CAD) System Valves Misaligned for Ascension into Mode 2

During preparations for reactor startup on November 24, 2012, operators transitioned the reactor from Mode 4 to Mode 2 at 11:35 a.m. At that time, the 20- inch and 24-inch diameter CAD system primary containment isolation valves (PCIVs) for torus and drywell vent and purge were open for a containment ventilation procedure that should have been secured prior to the mode change. As a result, these CAD system PCIVs, along with one train of the standby gas treatment system and the pressure suppression function of primary containment, became inoperable when the mode change occurred. TS 3.0.4 prohibits entry (with exceptions that were not applicable in this case) into a mode when a LCO applicable to that mode is not satisfied.

Operators identified the prohibited CAD system alignment later that day, and the containment ventilation lineup was promptly secured. Entergy determined that the cause of this event was that CAD system status had not been appropriately maintained due to inadequate crew communication practices.

The inspectors reviewed this event as discussed in NRC Integrated Inspection Report 05000333/2013002. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

4OA6 Meetings, Including Exit

On July 11, 2013, the inspectors presented the inspection results to Mr. Lawrence Coyle, Site Vice President, and other members of the Entergy staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

L. Coyle, Site Vice President
B. Sullivan, General Manager, Plant Operations
C. Adner, Manager, Licensing
C. Brown, Manager, Quality Assurance
R. Brown, Radiation Protection Supervisor ALARA
B. Finn, Director, Nuclear Safety Assurance
J. Furfuro, Chemistry Supervisor
M. Hawes, Licensing Engineer
R. Heath, Chemistry Manager
T. Hunt, Manager, Corrective Action and Assessment
T. Inch, I&C Technician
K. Irving, Manager, System Engineering
B. Landers, Chemistry Supervisor
D. Poulin, Manager, Operations
T. Redfearn, Manager, Security
M. Reno, Manager, Maintenance
E. Salvetti, Chief Journeyman Chemistry Environmental
D. Wallace, Director, Engineering
E. Wolfe, Manager, Radiation Protection

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Open/Closed

05000333/2013003-01	NCV	TS Actions for Inoperable Control Rod Not Performed Within the TS Allowed Completion Time (Section 1R15)
05000333/2013003-02	FIN	Inadequate Corrective Action for DHR System Degradation Results in Loss of DHR During R20 (Section 4OA2)

Closed

05000333/2012-007-00	LER	Reactor Scram Caused by Main Turbine Emergency Trip Lockout Valve Failure (Section 4OA3)

05000333/2012-008-00	LER	Automatic Reactor Shutdown Caused by a Fault in Main Transformer (Section 4OA3)
05000333/2012-009-00	LER	Containment Atmosphere Dilution (CAD) System Valves Misaligned for Ascension into Mode 2 (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
AP-12.04, "Seasonal Weather Preparations," Revision 19
OP-21, "Emergency Service Water (ESW)," Revision 38
OP-60, "Diesel Generator Room Ventilation," Revision 8
AOP-72, "115 KV Grid Loss, Instability, or Degradation," Revision 10
OP-44, "115 KV System," Revision 20
ST-9W, "Electrical Lineup and Power Verification," Revision 10

Condition Reports

CR-JAF-2011-00306	CR-JAF-2013-02696	CR-JAF-2012-06083
CR-JAF-2011-01438	CR-JAF-2011-01600	CR-JAF-2012-07800
CR-JAF-2011-05125	CR-JAF-2011-03640	CR-JAF-2012-07875
CR-JAF-2012-04772	CR-JAF-2011-05019	CR-JAF-2012-08692
CR-JAF-2012-05199	CR-JAF-2012-00700	CR-JAF-2013-01738

Section 1R04: Equipment Alignment

Document
DBD-046, "Design Basis Document for the Normal Service Water, Emergency Service Water, and RHR Service Water," Revision 18

Procedures
OP-21, "Emergency Service Water (ESW)," Revision 38
OP-22, "Diesel Generator Emergency Power," Revision 58

Section 1R05: Fire Protection

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

Procedures
FPP-3.56, "Portable Fire Extinguisher Inspection Procedure," Revision 1
PFP-PWR02, "West Cable Tunnel, Elevation 258 feet, Fire Area/Zone IC/CT-1," Revision 5

PFP-PWR15, "Crescent Area - west, Elevations 227 feet, 242 feet, Fire Area/Zone XVIII/RB-1W," Revision 3
PFP-PWR24, "Reactor Building - East, Elevation 300 feet, Fire Area/Zone VIII/RB-1C, IX/RB-1A," Revision 5
PFP-PWR-25, "Reactor Building - West, Elevation 300 feet, Fire Area/Zone X/RB-1B, VIII/RB-1C," Revision 3
PFP-PWR31, "Emergency Diesel Generator Spaces-South, Elevation 272 feet, Fire Area/Zone V/EG-1, EG-2, EG-5," Revision 4
PFP-PWR32, "Emergency Diesel Generator Spaces-North, Elevation 272 feet, Fire Area/Zone VI/EG-3, EG-4, EG-6," Revision 5
ST-76Y, "Fire Door Inspection and Operability Test," Revision 19

Section 1R07: Heat Sink Performance

Document
Program Health Report, Heat Exchanger Program, second and fourth quarters 2012

Procedures
ENN-SEP-HX-007, "JAF Heat Exchanger Program," Revision 0
SEP-SW-001, "JAF NRC Generic Letter 89-13 Service Water Program," Revision 1

Condition Report
CR-JAF-2013-02418

Work Order
WO 52378807

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

Procedures
AOP-70, "Security Threat," Revision 13
AOP-19a, "Loss of Switchgear L16," Revision 4
EOP-2, "RPV 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
EOP-5/6, "Secondary Containment Control / Radioactivity Release Control," Revision 8
EP-5, "Termination and Prevention of RPV Injection," Revision 6

Section 1R12: Maintenance Effectiveness

Documents
JAF-RPT-07-00030, "Maintenance Rule Basis Document / System 02-ADS0 / Automatic Depressurization System," Revision 2
JENG-APL-13-001, "Maintenance Rule (a)(1) Action Plan, System 02-ADS," Revision 0
Maintenance Rule Quarterly Report for the fourth quarter 2012
System Health Report for ADS for the third and fourth quarters 2012, and first quarter 2013
RHR and RHRSW System Health Reports, second quarter 2012 through first quarter 2013
DBD-010, "Design Basis Document for the Residual Heat Removal System," Revision 13

Procedures
EN-DC-203, “Maintenance Rule Program,” Revision 1
EN-DC-204, “Maintenance Rule Scope and Basis,” Revision 2
EN-DC-205, “Maintenance Rule Monitoring,” Revision 4
EN-DC-206, “Maintenance Rule (a)(1) Process,” Revision 2
OP-68, “Automatic Depressurization System,” Revision 19

Condition Reports

CR-JAF-2012-02175	CR-JAF-2011-03394	CR-JAF-2012-04131
CR-JAF-2012-05271	CR-JAF-2011-04019	CR-JAF-2012-04734
CR-JAF-2012-07165	CR-JAF-2011-04866	CR-JAF-2012-05056
CR-JAF-2012-07166	CR-JAF-2011-06437	CR-JAF-2012-05225
CR-JAF-2010-04912	CR-JAF-2012-01370	CR-JAF-2012-06329
CR-JAF-2010-06331	CR-JAF-2012-02149	CR-JAF-2012-07011
CR-JAF-2010-06656	CR-JAF-2012-02263	CR-JAF-2012-07238
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CR-JAF-2011-00934	CR-JAF-2012-03018	CR-JAF-2012-08177
CR-JAF-2011-02079	CR-JAF-2012-03704	CR-JAF-2012-08885
CR-JAF-2011-02207	CR-JAF-2012-03948	

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
AP-10.10, “On-Line Risk Assessment,” Revision 8
EN-OP-119, “Protected Equipment Postings,” Revision 5
EN-WM-104, “On Line Risk Assessment,” Revision 7

Section 1R15: Operability Determinations and Functionality Assessments

Documents
DBD-070, “Design Basis Document for the Control Room Relay Room Ventilation and Cooling Systems,” Revision13
DBD-093, “Design Basis Document for the Emergency Diesel Generator (EDG),” Revision 12
JAF-RPT-EDG-02303, “Maintenance Rule Basis Document System 93 Emergency Diesel Generator,” Revision 9

Procedures
EN-OP-104, “Operability Determination Process,” Revision 6
OP-56, “Relay Room Ventilation and Cooling,” Revision 20

Condition Report
CR-JAF-2012-04304

Section 1R19: Post-Maintenance Testing

Procedures
RAP-7.4.01, “Control Rod Scram Time Test Evaluation (IST),” Revision 26
SEP-HX-JAF-001, “JAF Eddy Current Testing of Heat Exchangers,” Revision 3

ST-8Q, “Testing of the Emergency Service Water System (IST),” Revision 43
ST-9BB, “EDG ‘B’ and ‘D’ Full Load Test and ESW Pump Operability Test,” Revision 13
ST-16GB, “B LPCI MOV Independent Power Supply Monthly Test,” Revision 0
OP-25, “Control Rod Drive Hydraulic System,” Revision 81, sections G.19, “CRD Speed Timing,” and G.20, “Adjusting CRD Speed”

Section 1R22: Surveillance Testing

Procedures
ST-2AL, “RHR Loop ‘A’ Quarterly Operability Test (IST),” Revision 34
ST-3PA, “Core Spray Loop ‘A’ Quarterly Surveillance Test (IST),” Revision 22
ST-3PB, “Core Spray Loop ‘B’ Quarterly Surveillance Test (IST),” Revision 23
ST-4N, “HPCI Quick-Start, Inservice, and Transient Monitoring Test (IST),” Revision 63
ISP-175A3, “Reactor Pressure ATWS Instrument Functional Test/Calibration (ATTS)**,” Revision 12
SP-01.02, “Reactor Water Sampling and Analysis,” Revision 24

Section1EP4: Emergency Action Level and Emergency Plan Changes

Documents
Emergency Plan, Section 4, “Emergency Conditions,” Revision 25
Emergency Plan, Section 7, “Emergency Facilities and Equipment,” Revision 31

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures
EN-RP-101, “Access Control for Radiological Controlled Areas,” Revision 7
EN-RP-105, “Radiation Work Permits,” Revision 2
EN-RP-106-01, “Radiological Survey Guidelines,” Revision 0
EN-RP-108, “Radiation Protection Posting,” Revision 13
EN-RP-121, “Radioactive Material Control,” Revision 7

Condition Reports
CR-JAF-2012-00070
CR-JAF-2012-00092
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CR-JAF-2012-06891

Surveys Reviewed

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JAF-1301-0144	01/16/13	JAF-1301-0184	01/21/13
JAF-1302-0095	02/09/13	JAF-1303-0047	03/05/13
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LO-JAFLO-2011-00144, "Internal Dose Control," April 3, 2012
LO-JAFLO-2011-00106, "Control of Radioactive Contamination and Radioactive Material," December 18, 2012
LO-HQNLO-2012-0076, July 30 to August 2, 2012
Nuclear Oversight Functional Area Performance Assessment, December 10 to 12, 2012

Section 2RS2: ALARA Planning and Control

Procedures
EN-RP-110, "ALARA Program," Revision 10
EN-RP-110-3, "Collective Radiation Exposure Reduction Guidelines," Revision 2
EN-RP-110-4, "Radiation Protection Risk Assessment Process," Revision 2
EN-RP-110-5, "ALARA Planning and Controls," Revision 1
EN-RP-121, "Radioactive Material Control," Revision 6

Condition Report
CR-JAF-2012-00333

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

Procedures
EN-RP-131, "Air Sampling," Revision 10
EN-RP-501, "Respirator Protection Program, Revision 4
EN-RP-502, "Inspection and Maintenance of Respiratory Protection Equipment," Revision 8
EN-RP-503, "Selection and Use of Respiratory Protection Equipment," Revision 5
EN-RP-504, "Breathing Air," Revision 3
RP-RESP-05.02, "Air Compressor, Bauer Unicus III," Revision 5

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CR-JAF-2012-00096
CR-JAF-2012-00372
CR-JAF-2012-01089

Air Samples Reviewed
Air Sample Numbers 12437 and 12442

Section 2RS4: Occupational Dose Assessment

Procedures
EN-RP-201, "Dosimetry Administration," Revision 3
EN-RP-202, "Personnel Monitoring," Revision 8
EN-RP-203, "Dose Assessment," Revision 5
EN-RP-204, "Special Monitoring Requirements," Revision 6

EN-RP-205, “Pre-Natal Monitoring,” Revision 3

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CR-JAF-2012-00119	CR-JAF-2012-01090	CR-JAF-2012-06798

Section 2RS7: Radiological Environmental Monitoring Program

Procedures

AM-03.04, Radioiodine Cartridge Analysis Using Gamma Spectroscopy, Revision 1
AM-03.05, Filter Composite Analysis Using Gamma Spectroscopy, Revision 2
AM-03.06, Preparation and Analysis of Liquid and Water Equivalent Solids Using Gamma Spectroscopy, Revision 1
AM-03.07, Water Sample Analysis for Gross Beta, Revision 5
AM-04.03, Preparation of Tissue Food Product Samples for Gamma Spectral Analysis, Revision 2
AM-04.04, Tritium Analysis of Water Samples, Revision 10
AM-04.05, Preparation of Liquid Samples for I-131 Determination, Revision 4
DVP-01.02, Offsite Dose Calculation Manual, Revision 12
S-ENVSP-3.2, Garden/Irrigation Census and Food Product (Vegetation and Irrigation Crop) Sample Collection, Revision 02
S-ENVSP-3.4, Soil Sample Collection, Revision 01
S-ENVSP-4.2, Environmental Air Monitoring Sample Collection, Revision 01001
SP-04.02, Circulating Water and Surface Water Sampling and Analysis, Revision 3

Condition Reports

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62683.01, EA Engineering Science and Technology, Inc, Quality Assurance Audit of the REMP Nine Mile Point and James A. FitzPatrick Nuclear Power Plants, April 5, 2013
GEL Laboratories, 2011 Annual Quality Assurance Report for the REMP, March 2, 2012

Instruments

Model LB 5100 LDB, calibrated May 17, 2013
Model PIC WPC 550, calibrated August 30, 2012

4OA1: Performance Indicator Verification

Document

NEI-99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 6

4OA2: Problem Identification and Resolution

Procedures

EN-LI-102, “Corrective Action Process,” Revision 21
EN-LI-121, “Entergy Trending Process,” Revision 12

AP-10.09, “Outage Risk Assessment,” Revision 32
ARP 09-3-1-9, “Fuel Pool Cool & Cln Up Trouble,” Revision 10

Condition Reports

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CR-JAF-2012-05160	CR-JAF-2013-02118	CR-JAF-2013-02612
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CR-JAF-2013-01147	CR-JAF-2013-02200	CR-JAF-2013-02718
CR-JAF-2013-01152	CR-JAF-2013-02232	CR-JAF-2013-02744
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CR-JAF-2013-01982	CR-JAF-2013-02342	CR-JAF-2013-03066
CR-JAF-2013-02011	CR-JAF-2013-02462	CR-JAF-2013-03069
CR-JAF-2013-02043	CR-JAF-2013-02484	

LIST OF ACRONYMS

10 CFR	Title 10 of the *Code of Federal Regulations*
AC	alternating current
ADAMS	Agencywide Documents Access and Management System
ALARA	as low as is reasonably achievable
BWR	boiling water reactor
CAD	containment atmosphere dilution
CAP	corrective action program
DHR	decay heat removal
EC	engineering change
EDG	emergency diesel generator
Entergy	Entergy Nuclear Northeast
EPD	electronic personal dosimeter
ESW	emergency service water
HCU	hydraulic control unit
HPCI	high-pressure coolant injection
HRA	high radiation area
HX	heat exchanger
IMC	Inspection Manual Chapter
ISI	in-service inspection
IST	in-service test
kV	kilovolt
LCO	limiting condition for operation
LER	licensee event report
LHRA	locked high radiation area
LPCI	low-pressure coolant injection
NEI	Nuclear Energy Institute
NCV	non-cited violation
NOUE	notification of unusual event

NRC	Nuclear Regulatory Commission
ODCM	offsite dose calculation manual
OE	operating experience
OSSO	Operations Shift Standing Order
PCIV	primary containment isolation valve
PWR	pressurized water reactor
R20	refueling outage 20
RCS	reactor coolant system
REMP	radiological environmental monitoring program
RG	regulatory guide
RHR	residual heat removal
RP	radiation protection
RWCU	reactor water cleanup
RWP	radiation work permit
SDP	significance determination process
SFP	spent fuel pool
SRV	safety relief valve
SSC	structure, system, and component
SSMP	Shutdown Safety Management Program
SSPV	scram solenoid pilot valve
TLD	thermo luminescent dosimeter
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
VHRA	very high radiation area
WO	work order