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

November 7, 2012

Mr. Michael J. Colomb
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 05000333/2012004

Dear Mr. Colomb:

On September 30, 2012, 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 October 26, 2012, with you and other members of your staff.

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

The report documents one finding of very low safety significance (Green). This finding was also 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 the 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 Senior Resident Inspector at FitzPatrick. In addition, if you disagree with the cross-cutting aspect assigned to the 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 Senior Resident Inspector at FitzPatrick.

In accordance with 10 CFR Part 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 (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html the Public Electronic Reading Room).

Sincerely,

***/RA/***

Mel Gray, Chief
Reactor Projects Branch 2
Division of Reactor Projects

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

Enclosure: Inspection Report 05000333/2012004
w/Attachment: Supplementary Information

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| OFFICE | RI/DRP | RI/DRP | RI/DRP | | |
| NAME | E Knutson/via phone | S McCarver | M Gray | | |
| DATE | 11/07/12 | 11/02/12 | 11/07/12 | | |

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION I**

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|---|---|
| Docket No.: | 50-333 |
| License No.: | DPR-59 |
| Report No.: | 05000333/2012004 |
| Licensee: | Entergy Nuclear Northeast (Entergy) |
| Facility: | James A. FitzPatrick Nuclear Power Plant |
| Location: | Scriba, New York |
| Dates: | July 1 through September 30, 2012 |
| Inspectors: | E. Knutson, Senior Resident Inspector<br>B. Sienel, Resident Inspector<br>T. Burns, Reactor Inspector<br>S. Hammann, Senior Health Physicist<br>J. Laughlin, Emergency Preparedness Inspector<br>L. Scholl, Senior Reactor Inspector<br>R. Rolph, Health Physicist |
| Approved by: | Mel Gray, Chief<br>Reactor Projects Branch 2<br>Division of Reactor Projects |

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## SUMMARY OF FINDINGS

IR 05000333/2012004; 07/01/2012 - 09/30/2012; James A. FitzPatrick Nuclear Power Plant (FitzPatrick); Operability Determination and Functionality Assessments.

The report covered a three-month period of inspection by resident inspectors, announced inspections performed by regional inspectors, and an in-office inspection conducted by headquarters personnel. Inspectors identified one finding of very low safety significance (Green), which was also a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within Cross-Cutting Areas." Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

**Cornerstone: Mitigating Systems**

- Green. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," because FitzPatrick staff did not take timely corrective action to verify that a crescent area unit cooler was operable under postulated conditions of degraded grid voltage. Specifically, FitzPatrick staff did not schedule first time low voltage pickup testing for unit cooler 66UC-22B until after summer lake temperature had increased to the point that removing the unit cooler from service would have challenged the temperature limit for ultimate heat sink (UHS) operability. When the test was later performed, the as-found pickup voltage exceeded the maximum allowed by the procedure and required a case-specific analysis to demonstrate operability. As immediate corrective action, FitzPatrick electricians cleaned the contact assembly and retested the unit, with satisfactory results. FitzPatrick staff entered this issue into the corrective action program as condition report (CR)-JAF-2012-04443.

  The finding was more than minor because it was similar to example 3.i in Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," in that a case-specific engineering analysis was required to assure the accident analysis requirements were met. The finding also affected the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding in accordance with IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," and determined that the finding was of very low safety significance (Green) because 66UC-22B maintained its functionality. The finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because FitzPatrick staff did not take appropriate corrective actions to address a safety issue in a timely manner, commensurate with its safety significance [P.1.(d)]. (Section 1R15)

## REPORT DETAILS

Summary of Plant Status

The James A. FitzPatrick Nuclear Power Plant (FitzPatrick) began the inspection period at 100 percent power. On July 19, 2012, operators reduced power to 70 percent for a control rod pattern adjustment and returned the unit to 100 percent power later that day. On July 25, 2012, operators reduced power to 50 percent to identify and plug leaking main condenser tubes. Operators returned the unit to 100 percent power the following day. On July 27, 2012, operators reduced power to 77 percent for a control rod pattern adjustment and returned the unit to 100 percent power later that day. On August 6, 2012, operators reduced power to 73 percent for the final control rod pattern adjustment of the operating cycle (all rods fully withdrawn) and returned the unit to 100 percent the following day. On August 13, 2012, operators reached maximum reactor recirculation flow, thus commencing a gradual reduction in reactor power due to fuel depletion (coast down). On September 5, 2012, operators reduced power to 50 percent to identify and plug leaking main condenser tubes. Operators returned the unit to maximum achievable power the following day. On September 16, operators shut down the reactor to commence refueling outage 20 and remained shut down for the remainder of the inspection period.

### 1. REACTOR SAFETY

**Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q - 2 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 'B' and 'D' emergency diesel generators (EDGs) during 'C' EDG maintenance on July 24, 2012
- 'A' residual heat removal (RHR) system during 'B' RHR system maintenance on August 3, 2012

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the updated final safety analysis report (UFSAR), Technical Specifications (TSs), condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Entergy staff had properly identified equipment issues and entered them into the corrective action program (CAP) for resolution with the

appropriate significance characterization. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 Full System Walkdown (71111.04S - 1 sample)

a. Inspection Scope

On September 6, 2012, the inspectors performed a complete system walkdown of accessible portions of the standby liquid control system to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, drawings, equipment line-up check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hanger and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related CRs to ensure FitzPatrick staff appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 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 FitzPatrick personnel 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.

- North safety related pump room, fire area/zone XIII/SP-2 on August 14, 2012
- South safety related pump room, fire area/zone XII/SP-1 on August 14, 2012
- Reactor building 326 foot elevation, fire area/zone IX/RB-1A, on August 23, 2012
- Reactor building 344 foot elevation, fire area/zone IX/RB-1A, on August 27, 2012
- Feedwater heater bays, turbine building 252, 272, and 300 foot elevations, fire area/zone IE/TB-1 and OR-2, on September 26, 2012

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 - 2 samples)

.1 Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

The inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could disable risk-significant equipment. Specifically, the inspectors performed a walkdown of the 'A' condensate storage tank (CST) pit, which contains which contains safety class instrumentation to perform the high pressure coolant injection (HPCI) pump suction transfer from the CST to the suppression pool, to determine whether the cables were subjected to submergence in water, cable insulation appeared intact, and degradation of cable support structures due to environmental factors affected their functionality.

b. Findings

No findings were identified.

.2 Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the CAP to determine if FitzPatrick staff identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors focused on the station batteries to verify the adequacy of floor and wall penetration seals and common drain lines and sumps.

b. Findings

No findings were identified.

1R07 Heat Sink Performance

.1 Annual Review (711111.07A - 1 sample)

a. Inspection Scope

The inspectors reviewed the results of the emergency service water (ESW) system annual thermal performance test that was performed in June 2012 in accordance with ST-8Q, "Testing of the Emergency Service Water System (IST) [in-service test]," Revision 41. Specifically, the inspectors reviewed the test results for the coolers located in the west crescent area. The thermal performance test determines the maximum lake temperature at which individual unit coolers can be considered operable. Results that are less than the TS maximum allowable service water inlet temperature of 85 degrees

Fahrenheit limit the plant's ability to operate with elevated lake temperatures until the cooler degradation is corrected. The inspectors noted that one (66UC-22A) of the five unit coolers in this area did not meet the 85 degree requirement, reaching 84 degrees. The inspectors also reviewed the subsequent engineering calculation which confirmed this cooler would meet the 85 degree requirement.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08 - 1 sample)

a. Inspection Scope

The inspectors examined a sample of nondestructive examinations (NDEs) by performance of a documentation review and direct observation of those NDE activities to verify compliance with the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI. Sample selection was based on availability and risk priority of those components and systems where degradation could result in a significant increase in risk of core damage. The inspectors verified ASME Code compliance by test procedure review, examiner qualification review, observation of equipment calibration and interview of examiner(s). The inspectors observed the examination of components in the field, and verified that the procedures were appropriately selected and applied. The inspectors verified that the test procedures used had been properly qualified and determined they were current and in accordance with the ASME Section XI Code requirements. In addition, the inspectors performed this review to determine that examiners had been trained and qualified for use of the performance demonstration initiative manual ultrasonic test (UT) procedures. Also, the inspectors selected a sample of CRs to evaluate FitzPatrick's effectiveness in the identification and resolution of relevant indications discovered during observed inservice inspection (ISI) activities. The inspectors' observation and documentation review of nondestructive testing included the following:

- Penetrant test (PT), examination of reactor pressure vessel safe end to nozzle Component ID N11A-SE dissimilar metal butt weld, reactor vessel elevation 327 foot, nuclear boiler system, ASME XI-PT, Drawing MSK 1158, Report ISI-PT-12-002
- Magnetic particle test, examination of integral attachment (hanger to pipe) weld, RHR system, carbon steel, component ID 24-10-992, drawing MSK-3013, 6.21-10-345 A and B
- UT pipe butt weld, 22 inch branch connection, reactor coolant system, drawing MSK-3001, component ID 22-02-2-21, report ISI-UT-12-020
- Visual examination (VT-3) of vertical spring can support, RHR system, drawing MSK-3013, 6.21-10-345A and B, component ID 10-14B-AN-246

The inspectors reviewed visual inspection results of selected in-vessel components including structural members, miscellaneous attachments, and other base metals and fabrication welds made to secure and support vessel internals. These observations were made to assess the test equipment performance (visual resolution), examination technique, and the quality of the inspection environment (water clarity). A comparison was made by the inspectors of indications identified in previous examinations to evaluate

potential growth and extension of the indications into sound material. No growth or extension to adjacent areas was noted. Additional CRs listed in the Attachment to this report were reviewed by the inspectors to evaluate the characterization and disposition of relevant indications and conditions identified during this inspection.

The inspectors selected for review two ASME Section XI repair/replacement plans where welding on safety-related components was performed. The review was performed to evaluate welder qualification and weld process control as specified in the work order. Also, the inspectors verified weld procedures and welders assigned to perform this work were qualified in accordance with the requirements of ASME Section XI and that specified weld examinations and acceptance criteria were in accordance with the ASME code requirements. The two ASME Section XI repair/replacement work plans reviewed were:

- Work Order (WO) 00277524-01 initiated for the repair of through wall weepage on lower strainer housing 10S-5A1 in the discharge piping of the RHR service water pumps A and C discharge strainer. The repair involved removal and replacement of failed portions of piping and structural components by welding in accordance with ASME Section XI and acceptance in accordance with ASME ISI Class 3
- WO 00199470-12 initiated to fabricate and replace a pipe portion that supplies ESW to the west electric bay and east cable tunnel. Welding was of carbon steel to carbon steel using weld procedure specification WPS CS-1/1-B, Revision 2, and the applicable Code for acceptance was ASME Section XI, ISI Class 3

The inspectors also performed a visual evaluation of the primary containment liner and additional structural members attached thereto to assess the condition of the protective coating. The evaluation included accessible locations on elevations 268 foot through 292 foot and unobstructed areas above and below. The inspectors performed this visual evaluation to assess the extent of peeling, blistering, coating loss or other damage as a result of corrosion, foreign material impact or lack of maintenance.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

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

a. Inspection Scope

The inspectors observed licensed operator simulator training on August 20, 2012, which included the failure of a condensate pump, a loss of power to half of the reactor protection system, an electro-hydraulic control system malfunction that led operators to insert a manual scram, a failure of control rods to insert as a result of the scram, and a failure of the standby liquid control system. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the

oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the technical specification action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room (71111.11Q - 1 sample)

a. Inspection Scope

On September 16, 2012, the inspectors observed control room operators during the reactor shutdown for refueling outage 20 (R20). Portions of the reactor shutdown and cooldown, including placing the RHR system in service for shutdown cooling, were observed. The inspectors observed crew performance to verify that procedure use, crew communications, and coordination of activities between work groups met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q - 2 samples)

a. Inspection Scope

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

- Instrument air system
- Fire protection system

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 4 samples)

a. Inspection Scope

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

- Planned maintenance 'C' EDG during the week of July 23, 2012
- Planned maintenance on the HPCI system during the week of August 27, 2012
- An unplanned power reduction to 50 percent to support emergent maintenance to identify and plug leaking main condenser tubes, and emergent maintenance to troubleshoot failure of the 'D' EDG to shut down on demand from the emergency shutdown panel, during the week of September 3, 2012
- Planned performance testing of the 'B' main station battery charger during the week of September 10, 2012

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-2012-04443 concerning east crescent area unit cooler 66UC-22B starter coil minimum pickup voltage greater than the procedure-specified maximum value and its effect on ultimate heat sink (UHS) operability, on August 7, 2012
- CR-JAF-2012-04359 concerning a reactor protection system alternate transformer conditioner circuit board that had signs of overheating from resistors, on August 8, 2012
- CR-JAF-2012-04994 concerning operability of the HPCI system with the HPCI booster pump recirculation pressure control valve, 23PCV-50, failed, on August 29, 2012. During HPCI operation, this caused the HPCI booster pump recirculation safety relief valve, 23SV-66, to continuously relieve approximately 75 gallons per minute to the reactor building equipment sump, thereby reducing the available supply water inventory
- CR-JAF-2012-04963 concerning RHR service water heat exchanger outlet isolation valve failure to stroke fully closed during shutdown from torus cooling, on September 6, 2012

- CR-JAF-2012-05449 concerning multiple control rods being declared inoperable during the reactor shutdown due to fuel channel bowing considerations at reduced reactor pressure, on September 17, 2012

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 TS and UFSAR to FitzPatrick personnel'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 FitzPatrick personnel. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

Introduction: The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," because FitzPatrick staff did not take timely corrective action to verify that a crescent area unit cooler was operable under postulated conditions of degraded grid voltage. Specifically, FitzPatrick staff did not schedule first time low voltage pickup testing for unit cooler 66UC-22B until after summer lake temperature had increased to the point that removing the unit cooler from service would have challenged the temperature limit for UHS operability. When the test was later performed, the as-found pickup voltage exceeded the maximum allowed by the procedure and required a case-specific analysis to demonstrate operability.

Description: The emergency core cooling system (ECCS) pumps at FitzPatrick are located in the east and west crescent rooms. Each room is cooled by five unit coolers that use ESW as the cooling medium. The crescent area ventilation and cooling system remains operable with a single unit cooler out of service, provided the remaining unit coolers are capable of providing adequate heat removal. FitzPatrick staff regularly conducts unit cooler performance testing to establish the heat removal capability of each unit cooler. Based on the test results, the maximum ESW (lake) temperature at which the required crescent room heat removal capability can be maintained with any one unit cooler inoperable, is determined. When this value is less than the TS value for UHS maximum temperature of 85 degrees Fahrenheit, it effectively becomes the UHS temperature limit while the given unit cooler is inoperable. The required action per TS 3.7.2.C for the UHS inoperable due to the maximum allowable temperature being exceeded is to be in Mode 3 within 12 hours and to be in Mode 4 within 36 hours.

On January 26, 2012, the starter coil for the east crescent unit cooler 66UC-22H fan motor failed first-time low voltage pickup testing. The purpose of this testing was to verify that the affected unit would start under design basis accident conditions coincident with degraded grid voltage. The need to perform this testing was identified by FitzPatrick staff in 2005, and it was decided to perform the testing as a part of periodic circuit breaker maintenance, as opposed to testing all the affected units at that time. Since this was a first time test, the unsatisfactory low voltage pickup condition was presumed always to have existed. Because actual lake temperature had, on occasion, exceeded the maximum allowable lake temperature for maintaining crescent area

ventilation and cooling system operability with 66UC-22H inoperable, this issue was reported to the NRC in a licensee event report (LER) as a condition which was prohibited by the plants TSs (discussed in Section 4OA3 of this report).

In February 2012, during investigation of the 66UC-22H issue, FitzPatrick staff identified that three other crescent area unit coolers (66UC-22B, -22C, and -22J) had not yet had first-time low voltage pickup testing performed. Although the apparent cause evaluation recommended that this testing be performed immediately, FitzPatrick staff assigned a completion date of July 30, 2012 (well after the onset of elevated summer lake temperatures).

Crescent area unit cooler 66UC-22B was scheduled for low voltage pickup testing on July 4, 2012. However, the Shift Manager did not allow the test to proceed that day because the resultant effective UHS temperature limit with that unit cooler removed from service was less than a degree above the actual lake temperature. Later that month, engineering staff provided new unit cooler lake temperature limits, and removing 66UC-22B from service was no longer operationally restrictive.

When the low voltage pickup test was performed for 66UC-22B on August 2, 2012, the as-found starter coil pickup voltage exceeded the maximum specified by the procedure, MP-056.01, “AC Motor Control Center Maintenance and Subcomponent Replacement,” at 94 volts alternating current (VAC) versus the procedure limit of less than or equal to 90 VAC. However, engineering staff had already performed a case-specific analysis of the maximum allowable pickup voltage for 66UC-22B, with a value of 97 VAC. Therefore, the as-found pickup voltage was adequate to support unit cooler operability. As immediate corrective action, FitzPatrick electricians cleaned the contact assembly and retested the unit, with satisfactory results. FitzPatrick staff entered this issue into the corrective action program as CR-JAF-2012-04443.

Analysis: The inspectors determined that FitzPatrick personnel not having performed first time low voltage pickup testing for 66UC-22B, as a prompt corrective action prior to elevated summer lake temperatures, was a performance deficiency that was reasonably within FitzPatrick staff’s ability to foresee and correct. This finding was more than minor because it was similar to example 3.i in Inspection Manual Chapter (IMC) 0612, Appendix E, “Examples of Minor Issues,” in that a case-specific engineering analysis was required to assure the accident analysis requirements were met. This finding also affected the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding in accordance with IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” and determined that the finding was of very low safety significance (Green) because 66UC-22B maintained its functionality.

This finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because FitzPatrick staff did not take appropriate corrective actions to address a safety issue in a timely manner, commensurate with its safety significance [P.1.(d)].

Enforcement: 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” requires, in part, that, “Measures shall be established to assure that conditions adverse to quality are promptly identified and corrected.” Contrary to the above, a condition adverse to

quality associated with crescent area unit cooler 66UC-22B, specifically, the unquantified value of low voltage pickup for the unit, was identified in February 2012, but it was not addressed with corrective actions until after environmental conditions had changed. Specifically, the first time testing of 66UC-22B cooler motor breaker low voltage pickup was not performed promptly prior to increased UHS temperatures and the subsequent test results did not meet procedure acceptance criteria. Because this issue was of very low safety significance (Green) and it was entered into the CAP as CR-JAF-2012-04443, this finding is being treated as an NCV, consistent with the NRC Enforcement Policy. **(NCV 05000333/2012004-01, Untimely Corrective Action to Address Crescent Area Unit Cooler Operability)**

1R18 Plant Modifications (71111.18 - 1 sample)

.1 Permanent Modifications

a. Inspection Scope

The inspectors evaluated a modification to replace the 10-ton carbon dioxide fire suppression system chiller compressor. The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the design change, EC-36404.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 - 4 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests (PMTs) 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.

- WO 00315170 to replace the circuit breaker for the 'B' control rod drive pump motor. The PMT was to verify proper breaker operation by starting and stopping the pump in accordance with OP-25, "Control Rod Drive Hydraulic System," on July 6, 2012
- WO 00312215 to correct dual position indication for the 'B' RHR pump shutdown cooling suction isolation valve, 10MOV-15B. The PMT was to verify proper open and closed indication and valve interlock operability in accordance with ST-2AM, "RHR Loop B Quarterly Operability Test (IST)," ST-41D, "Remote Valve Position Indication
- Verification Online (IST)," and ESP-13.002, "RHR Loop B Suction Valve and Torus Cooling Valve Interlock Test," on August 3, 2012

- WO 52364702 to replace HPCI relay 23A-K54, on September 12, 2012
- WO 52287958 to perform the acceptance test discharge on the newly installed 'B' 125 volt direct current (VDC) station battery in accordance with MST-071.20, "125 VDC Station Battery Service Test," on September 27, 2012

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 - 1 sample in progress)

a. Inspection Scope

The inspectors reviewed FitzPatrick's work schedule and outage risk plan for refueling outage 20, which commenced on September 16, 2012. The inspectors reviewed FitzPatrick's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable TS when taking equipment out of service
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting
- Status and configuration of electrical systems and switchyard activities to ensure that technical specifications were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of secondary containment as required by TS
- Refueling activities, including fuel handling
- Fatigue management
- Identification and resolution of problems related to refueling outage activities

The outage was in progress at the end of the inspection period, therefore this sample will be completed during the next inspection period.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 - 4 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests (STs) and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied technical specifications, the UFSAR, and station procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following STs:

- ST-1D, "MSIVs [main steam isolation valves], Main Steam Line Drain Valves, and RWR [reactor water recirculation] Sample Valves Logic System Functional Test," on July 26, 2012
- ESP-22.002, "LOCA [loss of coolant accident] Bypass of EDG B & D Shutdown Logic Functional Test," on August 27, 2012
- ST-4N, "HPCI Quick-Start, Inservice, and Transient Monitoring Test (IST)," on August 28, 2012
- ST-4E, "HPCI and SGT [standby gas treatment] Logic System Functional and Simulated Automatic Actuation Test," on August 29, 2012

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 ML12187A238 as listed in the Attachment.

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

b. Findings

No findings were identified.

## 2. RADIATION SAFETY

**Cornerstones: Occupational Radiation Safety and Public Radiation Safety**

2RS5 Radiation Monitoring Instrumentation (71124.05)

a. Inspection Scope

This area was inspected to verify FitzPatrick is assuring the accuracy and operability of radiation monitoring instruments that are used to protect occupational workers and to protect the public from nuclear power plant operations. The inspector used the requirements in 10 CFR Part 20, 10 CFR Part 50, Appendix A, Criterion 60, "Control of Release of Radioactivity to the Environment," and Criterion 64, "Monitoring Radioactive Releases," 10 CFR Part 50, Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operation 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," NUREG 0737, "Clarification of Three Mile Island Corrective Action Requirements," TSs, Offsite Dose Calculation Manual (ODCM), applicable industry standards, and FitzPatrick's procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed FitzPatrick's UFSAR to identify radiation instruments associated with monitoring area radiation, airborne radioactivity, process streams, effluents, materials/articles, and workers. Additionally, the inspectors reviewed the associated TS requirements for post-accident monitoring instrumentation. The inspectors reviewed a listing of in-service survey instrumentation including air samplers and small article monitors (SAM), along with radiation monitoring instruments used to detect and analyze workers' external contamination as well as, external dose. Additionally, the inspectors reviewed personnel contamination monitors (PCMs) and portal monitors (PMs) including whole-body counters to detect workers' surface and internal contamination. The inspectors assessed whether an adequate number and type of instruments were available to support operations.

The inspectors reviewed FitzPatrick and third-party evaluation reports of the radiation monitoring program since the last inspection including evaluations of offsite calibration facilities or services, if applicable.

The inspectors reviewed procedures that govern instrument source checks and calibrations, focusing on instruments used for monitoring transient high radiological conditions, including instruments used for underwater surveys. The inspectors reviewed the calibration and source check procedures for adequacy. The inspectors reviewed the area radiation monitor (ARM) alarm setpoint values and bases as provided in the TSs and the UFSAR.

The inspectors reviewed effluent monitor alarm setpoint bases and the calculation methods provided in the ODCM.

Walkdowns and Observations

The inspectors walked down three effluent radiation monitoring systems, including at least one liquid and one gaseous effluent system. Focus was placed on flow measurement devices and all accessible point-of-discharge liquid and gaseous effluent monitors. The inspectors assessed whether the effluent/process monitor configurations align with what is described in the UFSAR.

The inspectors selected five portable survey instruments in use or available for issuance and assessed calibration and source check stickers for currency, as well as, instrument material condition and operability.

The inspectors observed licensee staff performance as the staff demonstrated source checks for more than three different types of portable survey instruments. The inspectors assessed whether high-range instruments are source checked on all appropriate scales.

The inspectors walked down five area radiation monitoring system (ARMS) and five continuous air monitors (CAMs) to determine whether they are appropriately positioned relative to the radiation sources or areas they were intended to monitor. Selectively, the inspector compared ARM monitor response (via local readout or remote control room indications) with actual area radiological conditions for consistency.

The inspectors selected three PCMs, three PMs, and two SAMs and evaluated whether the periodic source checks were performed in accordance with the manufacturer's recommendations and FitzPatrick procedures.

Calibration and Testing Program

Process and Effluent Monitors

The inspectors selected three effluent monitor instruments and evaluated whether channel calibration and functional tests were performed consistent with FitzPatrick TSs/ODCM. The inspectors assessed whether (a) FitzPatrick calibrated its monitors with National Institute of Standards and Technology (NIST) traceable sources, (b) the primary calibrations adequately represented the plant nuclide mix, (c) when secondary calibration sources were used, the sources were verified by comparison with the primary calibration source, and (d) FitzPatrick's channel calibrations encompassed the instrument's alarm set-points.

The inspectors assessed whether the effluent monitor alarm setpoints are established as provided in FitzPatrick's ODCM and station procedures. For changes to effluent monitor setpoints, the inspectors evaluated the basis for changes to ensure that an adequate justification exists.

Laboratory Instrumentation

The inspectors assessed laboratory analytical instruments used for radiological analyses to determine whether daily performance checks and calibration data indicate that the frequency of the calibrations was adequate and there were no indications of degraded performance.

The inspectors assessed whether appropriate corrective actions were implemented in response to indications of degraded performance.

Whole Body Counter

The inspectors reviewed the methods and sources used to perform functional checks on the whole body counter before daily use and assessed whether check sources were appropriate and align with the plant's radionuclide mix.

The inspectors reviewed calibration records for the whole body counter since the last inspection and evaluated whether calibration sources were representative of the plant radionuclide mix and that appropriate calibration phantom was used. The inspectors looked for anomalous results or other indications of instrument performance problems.

Post-Accident Monitoring Instrumentation

The inspectors reviewed the calibration documentation for the drywell high-range monitors. The inspectors assessed whether an electronic calibration was completed for all range decades and were also calibrated using an appropriate radiation source. The inspectors assessed whether calibration acceptance criteria were reasonable, considering the large measuring range and the intended use of the instrument.

The inspectors selected one effluent/process monitor that is relied on by FitzPatrick in its emergency operating procedures as a basis for triggering emergency action levels and subsequent emergency classifications, or to make protective action recommendations during an accident. The inspectors evaluated the calibration and availability of this instrument.

The inspectors reviewed FitzPatrick's capability to collect high-range, post-accident effluent samples. As available, the inspectors observed electronic and radiation calibration of the instruments associated with the post accident effluent sampling to verify conformity with FitzPatrick's calibration and test protocols.

PMs, PCMs, and SAMs

The inspectors selected at least one of each type of these instruments and verified that the alarm setpoint values were reasonable under the circumstances to ensure that licensed material was not released from the site.

The inspectors reviewed the calibration documentation for each selected instrument and reviewed the calibration methods to determine consistency with the manufacturer's recommendations.

Portable Survey Instruments, ARMs, Electronic Dosimetry, and Air Samplers/CAMs

The inspectors reviewed calibration documentation for at least one of each type of portable instrument. For portable survey instruments and ARMs, the inspector reviewed detector measurement geometry and calibration methods and reviewed the use of its instrument calibrator as applicable.

As available, the inspectors selected one portable survey instrument that did not meet acceptance criteria during calibration or source checks, or discussed the actions to be taken with the instrument technician, to assess whether FitzPatrick's staff had taken appropriate corrective action for instruments found significantly out of calibration (greater than 50 percent). The inspectors evaluated whether FitzPatrick staff had evaluated the possible consequences associated with the use of an instrument that was "out-of calibration" since the last successful calibration or source check.

Instrument Calibrator

The inspectors reviewed the current radiation output values for FitzPatrick's portable survey and ARM instrument calibrator unit(s). The inspectors assessed whether FitzPatrick staff periodically verified calibrator output over the range of the exposure rates/dose rates using an ion chamber/electrometer.

The inspectors assessed whether the measuring devices had been calibrated by a facility using NIST traceable sources and whether decay corrective factors for these measuring devices were properly applied by FitzPatrick in its output verification.

Calibration and Check Sources

The inspectors reviewed FitzPatrick's source term or waste stream characterization per 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," to assess whether calibration sources used were representative of the types and energies of radiation encountered in the plant.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

This area was inspected to ensure the gaseous and liquid effluent processing systems were maintained so radiological discharges were properly reduced, evaluated, monitored, and released and to verify the adequacy of effluent release and public dose calculations resulting from radioactive effluent discharges.

The inspectors used the requirements in 10 CFR Part 20, 10 CFR Part 50.35(a), TSs, 10 CFR Part 50, Appendix A, Criterion 60, "Control of Release of Radioactivity to the Environment," and Criterion 64, "Monitoring Radioactive Releases, 10 CFR Part 50, Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion 'As Low as is Reasonably Achievable' (ALARA) for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents," 10 CFR Part 50.75(g), "Reporting and Recordkeeping for Decommissioning Planning," 40 CRP 141, "Maximum Contaminant Levels for Radionuclides," 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," the guidance in Regulatory Guides (RGs) 1.109, 1.21, 4.1, and 4.15, NUREG 1301 or 1302

ODCM Guidance, “Standard Radiological Effluent Controls,” as well as applicable industry standards, and licensee procedures required by FitzPatrick’s TSs/ODCM as criteria for determining compliance.

Inspection Planning and Program Reviews

Event Report and Effluent Report Reviews

The inspectors reviewed FitzPatrick’s Radiological Effluent Release Reports for 2010 and 2011 to determine if the reports were submitted as required by the ODCM/TSs. The inspectors reviewed anomalous results, unexpected trends, or abnormal releases identified by FitzPatrick staff. The inspectors determined if these effluent results were evaluated, were entered in the CAP, and were adequately resolved.

The inspectors identified radioactive effluent monitor operability issues reported by FitzPatrick as provided in FitzPatrick Annual Radioactive Effluent Release Report, and reviewed these issues and determined if the issues were entered into the CAP and were adequately resolved.

ODCM and Final or Updated Safety Analysis Report Review

The inspectors reviewed FitzPatrick UFSAR descriptions of the radioactive effluent monitoring systems, treatment systems, and effluent flow paths to identify system design features and required functions.

The inspectors reviewed changes to FitzPatrick’s ODCM since the last inspection. When differences were identified, the inspectors reviewed the technical basis or evaluations of the change and determined whether they were technically justified and maintained effluent releases ALARA.

The inspectors reviewed FitzPatrick staff’s documentation to determine if FitzPatrick staff had identified any non-radioactive systems that had become contaminated, as disclosed either through an event report or the ODCM since the last inspection. The inspectors reviewed selected 10 CFR Part 50.59 evaluations and determined if any newly contaminated systems had an unmonitored effluent discharge path to the environment. The inspectors also reviewed whether it required revisions to the ODCM to incorporate these new pathways and whether the associated effluents were reported in accordance with RG 1.21.

Groundwater Protection Initiative (GPI) Program

The inspectors reviewed reported groundwater monitoring results and changes to FitzPatrick staff’s written program for identifying and controlling contaminated spills/leaks to groundwater.

Procedures, Special Reports, and Other Documents

The inspectors reviewed LERs, event reports and/or special reports related to the effluent program issued since the previous inspection to identify any additional focus areas for the inspection based on the scope/breadth of problems described in these reports.

The inspectors reviewed effluent program implementing procedures, including those associated with effluent sampling, effluent monitor set-point determinations, and dose calculations.

The inspectors reviewed copies of FitzPatrick staff's and third party (independent) evaluation reports of the effluent monitoring program since the last inspection to gather insights into the effectiveness of FitzPatrick's program.

Walkdowns and Observations

The inspectors walked down selected components of the gaseous and liquid discharge systems to verify that equipment configuration and flow paths align with the descriptions in FitzPatrick's UFSAR and to assess equipment material condition. Special attention was devoted to identifying potential unmonitored release points, building alterations which could impact airborne, or liquid, effluent controls, and ventilation system leakage that communicate directly with the environment.

The inspectors reviewed FitzPatrick's material condition surveillance records, as applicable, for equipment or areas associated with the systems selected for review that were not readily accessible due to radiological conditions.

The inspectors walked down filtered ventilation systems to verify there are no degraded conditions associated with high-efficiency particulate air /charcoal banks, improper alignment, or system installation issues that would impact the performance or the effluent monitoring capability of the effluent system.

As available, the inspectors observed selected portions of the routine processing and discharge of radioactive gaseous effluent to verify that appropriate treatment equipment was used and the processing activities align with discharge permits.

The inspectors determined that when FitzPatrick staff had made changes to their effluent release points, 10 CFR Part 50.59 screenings were performed and no safety evaluations were required for the alternate discharge points.

As available, the inspectors observed selected portions of the routine processing and discharge of liquid waste. The inspectors verified that appropriate effluent treatment equipment was being used and that radioactive liquid waste was being processed and discharged in accordance with FitzPatrick procedures.

Sampling and Analyses

The inspectors selected two effluent sampling activities, and assessed whether adequate controls had been implemented to ensure representative samples were obtained.

The inspectors selected two effluent discharges made with inoperable effluent radiation monitors to verify that controls were in place to ensure compensatory sampling was performed consistent with the TSs/ODCM and that those controls were adequate to prevent the release of unmonitored liquid and gaseous effluents.

The inspectors determined whether the facility is routinely relying on the use of compensatory sampling, in lieu of adequate system maintenance, based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the inter-laboratory and intra-laboratory comparison program to verify the quality of the radioactive effluent sample analyses. The inspector also assessed whether the intra and inter-laboratory comparison program included hard-to-detect isotopes, as appropriate.

Instrumentation and Equipment

Effluent Flow Measuring Instruments

The inspectors reviewed the methodology that FitzPatrick staff used to determine the effluent stack and vent flow rates to verify that the flow rates were consistent with TSs/ODCM and/or UFSAR values. The inspectors reviewed the differences between assumed and actual stack and vent flow rates to ensure that they did not affect the calculated results of the public doses.

Air Cleaning Systems

The inspectors assessed whether ST results for TS required ventilation effluent discharge systems met TS acceptance criteria.

Dose Calculations

The inspectors reviewed all significant changes in reported dose values compared to the previous radioactive effluent release report to evaluate the factors which may have resulted in the change.

The inspectors reviewed more than three radioactive liquid and the continuous gaseous releases, to verify that the projected doses to members of the public were accurate and based on representative samples of the discharge path.

The inspectors evaluated the methods used to determine the isotopes that were included in the source term to ensure all applicable radionuclides were included, within detectable standards. The review included FitzPatrick's current waste stream analyses to ensure hard-to-detect radionuclides were included in the effluent releases.

The inspectors reviewed changes in FitzPatrick staff's methodology for offsite dose calculations since the last inspection to verify the changes are consistent with the ODCM and RG 1.109. The inspectors reviewed meteorological dispersion and deposition factors used in the ODCM and effluent dose calculations to ensure appropriate dispersion/deposition factors were being used for public dose calculations.

The inspectors reviewed the latest Land Use Census to verify that changes in the local land use had been factored into the dose calculations and environmental sampling/analysis program.

The inspectors evaluated whether the calculated doses were within the 10 CFR Part 50, Appendix I and TS dose criteria.

The inspectors reviewed two records of abnormal liquid discharges. The inspectors verified the abnormal unmonitored discharges were reviewed and that an evaluation was made of each discharge to account for the effluent releases and were included in calculated doses to the public.

Groundwater Protection Initiative Implementation

The inspectors reviewed monitoring results of the GPI to determine if FitzPatrick had implemented its program as intended, and to identify any anomalous results. For anomalous results or missed samples, the inspectors assessed whether FitzPatrick has identified and addressed deficiencies through its CAP.

The inspectors reviewed identified leakage or spill events and entries made into FitzPatrick's decommissioning files. The inspectors reviewed evaluations of leaks or spills, and reviewed the effectiveness of any remediation actions. The inspectors reviewed on-site contamination events involving contamination of groundwater and assessed whether the source of the leak or spill was identified and isolated/terminated.

For unmonitored spills, leaks, or unexpected liquid or gaseous discharges, the inspectors assessed whether an evaluation was performed to determine the type and amount of radioactive material that was discharged.

The inspectors confirmed that FitzPatrick has no on-site surface water bodies that contain or potentially contain radioactivity, and no potential for groundwater leakage from on-site surface water bodies.

The inspectors assessed whether on-site groundwater sample results and a description of any significant on-site leaks/spills into groundwater for each calendar year were documented in the Annual Radioactive Effluent Release Report.

For significant, new effluent discharge points, such as significant or continuing leakage to groundwater that continues to impact the environment, the inspectors evaluated whether FitzPatrick's ODCM was updated to include the dose calculation method for the new release point and the associated dose calculation methodology.

b. Findings

No findings were identified.

## 4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Initiating Events Cornerstone - Unplanned Scrams, Unplanned Scrams with Complications, and Unplanned Power Changes (3 samples)

a. Inspection Scope

The inspectors reviewed FitzPatrick's submittal for the Unplanned Scrams per 7,000 critical hours, Unplanned Scrams with Complications, and Unplanned Power Changes performance indicators (PIs) for the period of July 1, 2011 through June 30, 2012. To

determine the accuracy of the PI data reported during this period, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed LERs, CRs, control rooms logs, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.2 Radiological Effluents Technical Specifications (RETS)/ODCM Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

The inspectors reviewed relevant effluent release reports for the period January 1, 2011, through December 31, 2011, for issues related to the public radiation safety PI, which measures radiological effluent release occurrences that, for liquid effluents, exceed 1.5 millirem/quarter whole body or 5.0 millirem/quarter organ dose, and, for gaseous effluents, exceed 5 millirads/quarter gamma air dose, 10 millirads/quarter beta air dose, and 7.5 millirads/quarter for organ dose.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 - 4 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 FitzPatrick staff entered issues into the CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP and periodically attended CR screening meetings.

The inspectors evaluated whether problems associated with radiation monitoring instrumentation and the effluent monitoring and control program were being identified by FitzPatrick at an appropriate threshold and were properly addressed for resolution in FitzPatrick's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by FitzPatrick that involve radiation monitoring instrumentation and radiation monitoring and exposure controls.

b. Findings

No findings were identified.

.2 Annual Sample: Analog Transmitter Trip Units Becoming Unseated During Maintenance

a. Inspection Scope

The inspectors performed an in-depth review of FitzPatrick's failure analysis and corrective actions associated with condition reports CR-JAF-2011-05040 and CR-JAF-2011-06437 that document occurrences where analog transmitter trip system (ATTS) circuit cards became unseated. As a result, one or more of the electrical connections at the card and backplane connector interface lost full contact and resulted in an alarm or degraded indication of the affected plant parameters. Most of the events have occurred during maintenance and surveillance activities involving card removals/insertions and resulted in spurious control room alarms.

The inspectors assessed FitzPatrick's problem identification threshold, causal analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of corrective actions to determine whether FitzPatrick was appropriately identifying, characterizing, and correcting problems associated with this issue. The inspectors compared the actions taken to the requirements of FitzPatrick's CAP and 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." In addition, the inspectors reviewed documentation associated with this issue, including condition and failure analysis reports, and interviewed engineering personnel to assess the effectiveness of the implemented corrective actions and the actions planned to complete full resolution of the issue.

b. Findings and Observations

No findings were identified.

Intermittent spurious alarms resulted in the ATTS system being placed in a maintenance rule (a)(1) status in 2008. An action plan was developed at that time, a causal evaluation was performed and corrective actions were implemented to minimize the potential for future issues. After an appropriate monitoring period without repeat issues the plan was closed and the system returned to the normal, (a)(2) status. Following a momentary trip unit failure in December 2011, an apparent cause evaluation (ACE) again was performed and the ATTS system was again placed in maintenance rule (a)(1) status. The ACE corrective actions include troubleshooting recommendations intended to identify the cause(s) for the ongoing spurious alarms that have been occurring on various trip units. The (a)(1) action plan will be adjusted to include the results of troubleshooting efforts.

The inspectors noted that FitzPatrick evaluations included an assessment of the momentary individual trip units on the associated safety functions. For example, a trip unit that provides an input to the reactor protection or primary containment isolation functions will fail safe on a loss of power. Therefore, a trip unit failure will result in one half of the safety function logic being satisfied. In the case of the trip units that input to emergency core cooling systems, a failure of one instrument would not prevent redundant systems from performing the safety function.

The inspectors determined FitzPatrick's overall response to the issue was commensurate with the safety significance, was timely, and the actions taken and planned were reasonable to resolve the trip unit momentary failure issue.

.3 Annual Sample: Incorrect Temperature Limits Used in Instrument Setpoint Calculations

a. Inspection Scope

The inspectors performed an in-depth review of FitzPatrick's causal analysis and corrective actions associated with condition reports CR-JAF-2011-02094 and CR-JAF-2011-03395 regarding the use of incorrect ambient temperature assumptions in various instrumentation loop uncertainty and setpoint calculations.

The inspectors assessed FitzPatrick's problem identification threshold, causal analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of FitzPatrick's corrective actions to determine whether FitzPatrick was appropriately identifying, characterizing, and correcting problems associated with this issue. The inspectors compared the actions taken to the requirements of FitzPatrick's CAP and 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." In addition, the inspectors reviewed documentation associated with this issue, including condition and failure analysis reports, and interviewed engineering personnel to assess the effectiveness of the implemented corrective actions and the actions planned to complete full resolution of the issue.

b. Findings and Observations

No findings were identified.

The inspectors found that FitzPatrick staff took appropriate actions to identify the calculations that were potentially impacted by this issue and performed an assessment of the likely impact on the calculation and whether the setpoint had sufficient margin for the function to remain operable pending revision of the calculation. During their review, FitzPatrick staff appropriately prioritized calculations reviews to ensure existing calculations that had little or no margin were addressed first.

The inspectors determined FitzPatrick's overall response to the issue was commensurate with the safety significance, was timely, and the actions taken and planned were reasonable to resolve the setpoint calculation issue.

During a review of the surveillance procedure that performs channel checks of the instrumentation that monitors ambient temperatures in various areas of the plant, the inspectors noted an inconsistency in the acceptance criteria. The sign-off log sheets in procedure ST-40D, "Daily Surveillance and Channel Check," provides acceptance criteria in the form of an allowed tolerance between two channels of instrumentation measuring the same parameter and/or in the form of a upper and lower range for the measured parameter. Revision 107 of the procedure did not specify a tolerance value for the reactor core isolation cooling (RCIC) and HPCI area temperature instruments. FitzPatrick staff identified that specifying a tolerance for operators to use during channel check surveillance procedures is the preferred method of performing a channel check and documented the issue in CR-JAF-2011-02390. ST-40D was subsequently revised to add a tolerance to the sign-off log sheets for the RCIC/HPCI area temperature instruments.

The inspectors acknowledged that revising the log sheets for the RCIC/HPCI area temperature channel checks was appropriate. However, the inspectors also noted that

the procedure revision was narrowly focused as it failed to address the lack of a tolerance specification in the sign-off log sheet for the main steam tunnel temperature channel checks. FitzPatrick initiated CR-JAF-2012-05388 to address this issue.

.4 Annual Sample: Reactor Feed Pump Speed Control Issues

a. Inspection Scope

The inspectors performed an in-depth review of FitzPatrick's failure analysis and corrective actions associated with reactor feedwater pump speed control issues documented in condition reports CR-JAF-2010-02623, CR-JAF-2010-02738 and CR-JAF-2010-07841.

The inspectors assessed FitzPatrick's problem identification threshold, causal analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of FitzPatrick's corrective actions to determine whether FitzPatrick was appropriately identifying, characterizing, and correcting problems associated with this issue. The inspectors compared the actions taken to the requirements of FitzPatrick's CAP and 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." In addition, the inspectors reviewed documentation associated with this issue, including condition and failure analysis reports to assess the effectiveness of the implemented corrective actions.

b. Findings

No findings were identified.

.5 Annual Sample: Potential Leakage from the Spent Fuel Pool Liner

a. Inspection Scope

The inspectors performed an in-depth review of FitzPatrick's failure analysis and corrective actions associated with potential leakage from the spent fuel pool (SFP) liner as indicated by intermittent water coming from the SFP telltale drain system, documented in condition reports CR-JAF-2005-01682 and CR-JAF-2010-08058.

The inspectors assessed FitzPatrick's problem identification threshold, causal analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of FitzPatrick's corrective actions to determine whether FitzPatrick was appropriately identifying, characterizing, and correcting problems associated with this issue. The inspectors compared the actions taken to the requirements of FitzPatrick's CAP and 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." In addition, the inspectors reviewed documentation associated with this issue, including condition and failure analysis reports to assess the effectiveness of the implemented corrective actions.

b. Findings

No findings were identified.

On both occasions when water was found to be coming from the SFP telltale drain system, FitzPatrick staff initiated extensive investigations to determine the source of the leakage and correct the cause. Possible sources were determined to be either leakage

through a weld defect or crack in the SFP liner, or water due to condensation or other sources leaching through the concrete and into the SFP telltale drain system. However, on both occasions, leakage eventually slowed to such a small amount that the source could not be definitively identified.

The purpose of the SFP liner is to serve as a leak-proof membrane and the surrounding concrete provides structural strength. Therefore, a through-wall defect in the SFP liner would not compromise the structural integrity of the SFP. FitzPatrick staff estimated that the maximum flow rate that the SFP telltale drain system could pass was 55 gallons per minute (gpm), which was significantly less than the normal SFP makeup capacity of approximately 200 gpm. Therefore, any leakage through the SFP liner would not compromise the ability to maintain adequate level in the SFP. Water discharged from the SFP telltale drain system is contained within the reactor building and does not result in a release of radioactive material to the environment. The inspectors concluded that FitzPatrick staff's actions to attempt to address water coming from the SFP telltale drain system have been appropriate.

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

(Discussed) LER 05000333/2012-001-00: Unit Cooler Fan Motor Contactor Low Voltage Test Failure Results in Loss of Safety Function and Condition Prohibited by the Technical Specifications

On January 26, 2012, first time low voltage pickup testing was performed for the east crescent unit cooler 66UC-22H fan motor. Based on the as-found value, FitzPatrick staff determined that the unit cooler would not have been able to perform its support function to provide adequate cooling to the ECCS pumps in the east crescent room under all design conditions. FitzPatrick staff concluded that the resultant failure to satisfy Technical Requirements Manual (TRM) requirements for crescent area ventilation and cooling resulted in this ECCS support system being non-functional, which had caused ECCS in the east crescent to be inoperable. The LER was submitted due to a condition prohibited by the plant's TSs, and due to a condition that could have prevented fulfillment of the safety function of a system needed to mitigate the consequences of an accident.

The inspectors had questions regarding the TS action statements identified in the LER related to this equipment problem. Specifically, no reference was made to the TS UHS specification, as discussed in Section 1R15 of this report. Pending further inspector review of this issue, this LER remains open.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (ISFSI) at Operating Plants (60855)

a. Inspection Scope

The inspectors evaluated FitzPatrick staff's activities related to long-term operation and monitoring of their ISFSI, and verified that activities were being performed in accordance with the Certificate of Compliance (CoC), TSs, regulations, and licensee procedures.

The inspectors performed tours of the ISFSI pad to assess the material condition of the pad and the loaded horizontal storage modules (HSMs). The inspectors also verified that transient combustibles were not being stored on the ISFSI pad or the vicinity of the HSMs. The inspectors confirmed vehicle entry onto the ISFSI pad was controlled in accordance with FitzPatrick's procedures and verified that FitzPatrick was appropriately performing daily HSM temperature surveillances in accordance with TS requirements.

The inspectors interviewed reactor engineering personnel and reviewed FitzPatrick's program associated with fuel characterization and selection for storage. The inspectors verified that the criteria meets the conditions for cask and canister use as specified in the CoC. The inspectors also confirmed that physical inventories were conducted annually and were maintained as required by the regulations.

The inspectors reviewed radiological records from the last ISFSI loading campaign in 2009 to confirm that radiation and contamination levels measured on the casks were within limits specified by the TS and consistent with values specified in the UFSAR. The inspectors reviewed radiation protection procedures and radiation work permits associated with ISFSI operations. The inspectors also reviewed annual environmental reports to verify that areas around the ISFSI pad and the ISFSI site boundary were within limits specified in 10 CFR Part 20 and 10 CFR Part 72.104.

The inspectors reviewed corrective action reports and the associated follow-up actions that were generated since FitzPatrick's last loading campaign to ensure that issues were entered into the CAP, prioritized, and evaluated commensurate with their safety significance. The inspectors also reviewed FitzPatrick's 10 CFR Part 72.48 screenings.

b. Findings

No findings were identified.

.2 (Closed) Temporary Instruction 2515/185, Follow-up on the Industry's Ground Water Protection Initiative

a. Inspection Scope

The inspector conducted the following activities to confirm FitzPatrick staff's implementation of the voluntary Groundwater Protection Initiative.

GPI Objective 1.1 - Site Hydrology and Geology

- The inspectors could not verify that a hydrology and geologic study was performed by an outside contractor to determine the predominant groundwater flow characteristics and gradients. The contractor has not issued a report as of the date of this inspection
- The inspectors could not verify the study was reviewed by a knowledgeable utility employee
- The inspectors could not verify that potential pathways have been identified for groundwater migration from on-site locations to off-site locations through groundwater

- The inspectors could not verify that a five year frequency had been established in FitzPatrick's procedures for periodic review of the hydro geologic studies
- The inspector could not verify that no changes were required to the UFSAR

GPI Objective 1.2 - Site Risk Assessment

- The inspectors verified that FitzPatrick had identified SSCs and work practices that involve or could reasonably be expected to involve licensed material and for which there is a credible mechanism for licensed material to reach groundwater
- The inspectors verified that FitzPatrick staff had identified leak detection methods for each of the SSCs and work practices that involves or could reasonably be expected to involve licensed material and for which there is a credible mechanism for licensed material to reach groundwater
- The inspectors verified that potential enhancements to the leak detection systems or programs had been identified
- The inspectors verified that potential enhancements had been identified to prevent leaks and spills from reaching groundwater
- The inspectors verified that FitzPatrick's CAP will be used to identify and track corrective actions
- The inspectors verified a long term program had been established to perform preventative maintenance or surveillance activities to minimize the potential for inadvertent releases of licensed materials due to equipment failure
- The inspectors verified that a five year frequency had been established in FitzPatrick's procedures for periodic review of SSCs and work practices

GPI Objective 1.3 - On-Site Groundwater Monitoring

- The inspectors could not verify FitzPatrick staff had considered the placement of monitoring wells down gradient from the plant but within the site boundary
- The inspectors verified that FitzPatrick staff considered placing sentinel wells closer to SSCs that have the highest potential for inadvertent releases that could reach groundwater
- The inspectors verified that FitzPatrick staff had established sampling and analysis protocols, including analytical sensitivity in site procedures
- The inspectors verified that a formal written program had been established for long term groundwater monitoring. The inspectors verified that the ODCM had not been revised, per the recommendation of the Nuclear Energy Institute, to include groundwater monitoring, as the monitoring locations were not included in the Radiological Environmental Monitoring Program
- The inspectors verified that the analytical capabilities were periodically reviewed as part of the analytical cross check program
- The inspectors could not verify that a long-term program had been established in FitzPatrick's procedures for the groundwater monitoring wells
- The inspectors could not verify a frequency had been established in FitzPatrick's procedures for the periodic review of the groundwater monitoring program

GPI Objective 1.4 - Remediation Process

- The inspectors verified that written procedures had been established outlining the decision making process for the remediation of leaks and spills or other instances of inadvertent releases
- The inspectors verified that an evaluation was performed of the potential for detectible levels of licensed material from planned releases of liquids and/or airborne materials
- The inspectors verified that an evaluation had been performed and documented on the decommissioning impacts resulting from remediation activities

b. Findings

No findings were identified. These inspection results will be compiled as a response to NRC SECY Paper 11-0019.

.3 Temporary Instruction 2515/187 - Inspection of Near-Term Task Force Recommendation 2.3 - Flooding Walkdowns

a. Inspection Scope

On September 19, 2012, inspectors commenced activities to independently verify that FitzPatrick conducted external flood protection walkdown activities using an NRC-endorsed walkdown methodology. These flooding walkdowns are being performed at all sites in response to Enclosure 4 of a letter from the NRC to licensees entitled, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated March 12, 2012 (ADAMS Accession No. ML12053A340). When complete, the results of this temporary instruction (TI) will be documented in a future inspection report.

b. Findings

No findings were identified.

.4 Temporary Instruction 2515/188 - Inspection of Near-Term Task Force Recommendation 2.3 - Seismic Walkdowns

a. Inspection Scope

On September 20, 2012, inspectors commenced activities to independently verify that FitzPatrick conducted seismic walkdown activities using an NRC-endorsed seismic walkdown methodology. These seismic walkdowns are being performed at all sites in response to Enclosure 3 of a letter from the NRC to licensees entitled, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated March 12, 2012 (ADAMS Accession No. ML12053A340). When complete, the results of this TI will be documented in a future inspection report.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On October 26, 2012, the inspectors presented the inspection results to Mr. Michael Colomb, Site Vice President, and other members of the FitzPatrick staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

## SUPPLEMENTARY INFORMATION

### KEY POINTS OF CONTACT

Entergy Personnel

M. Colomb, Site Vice President
C. Adner, Manager, Licensing
C. Brown, Manager, Quality Assurance, Entergy
B. Finn, Director, Nuclear Safety Assurance
T. Hunt, Manager, Corrective Action and Assessment
D. Poulin, Manager, Operations
T. Redfearn, Manager, Security
M. Reno, Manager, Maintenance
K. Irving, Manager, Programs and Components Engineering
B. Sullivan, General Manager, Plant Operations
D. Wallace, Director, Engineering
E. Wolfe, Manager, Radiation Protection

### LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

| | | |
|---|---|---|
| 05000333/2012004-01 | NCV | Untimely Corrective Action to Address Crescent Area Unit Cooler Operability (Section 1R15) |

Closed

| | | |
|---|---|---|
| 05000333/2515/185 | TI | Follow-up on the Industry's Ground Water Protection Initiative (Section 4OA5) |

Discussed

| | | |
|---|---|---|
| 05000333/2012-001-00 | LER | Unit Cooler Fan Motor Contactor Low Voltage Test Failure Results in Loss of Safety Function and Condition Prohibited by the Technical Specifications (Section 4OA3) |
| 05000333/2515/187 | TI | Inspection of Near-Term Task Force Recommendation 2.3 - Flooding Walkdowns (Section 4OA5) |
| 05000333/2515/188 | TI | Inspection of Near-Term Task Force Recommendation 2.3 - Seismic Walkdowns (Section 4OA5) |

## LIST OF DOCUMENTS REVIEWED

### Section 1R04: Equipment Alignment

Procedures
OP-13, "Residual Heat Removal System," Revision 95
OP-21, "Emergency Service Water," Revision 37
OP-22, "Diesel Generator Emergency Power," Revision 57
OP-17, "Standby Liquid Control System," Revision 49
EP-4, "Boron Injection Using CRD System," Revision 2

Documents
System Health Report, Standby Liquid Control System, second quarter 2012
FM-21A, "Flow Diagram Standby Liquid Control System"
FM-27A, Flow Diagram Control Rod Drive System"

Condition Reports

| | | |
|---|---|---|
| CR-JAF-2009-03244 | CR-JAF-2010-00047 | CR-JAF-2012-00811 |
| CR-JAF-2009-03433 | CR-JAF-2010-00256 | CR-JAF-2012-00912 |
| CR-JAF-2009-03994 | CR-JAF-2010-02557 | CR-JAF-2012-01706 |
| CR-JAF-2009-04251 | CR-JAF-2011-03428 | |

### Section 1R05: Fire Protection

Procedures
PFP-PWR33, "Pump Rooms (Screenwell)/ Elev. 255' Fire Area/Zone XII/SP-1, XIII/SP-2, IB/FP-1, FP-3," Revision 1
PFP-PWR26, "Reactor Building / Elevation 326' Fire Area / Zone IX/RB-1A," Revision 3
PFP-PWR27, "Reactor Building / Elevation 344' Fire Area / Zone IX/RB-1A," Revision 4
PFP-PWR43, "Turbine Building-South / Elevation 252' Fire Area / Zone IE/TB-1," Revision 5
PFP-PWR45, "Turbine Building-North / Elevation 272' Fire Area / Zone IE/TB1," Revision 6
PFP-PWR46, "Turbine Building-South / Elevation 272' Fire Area / Zone IE/TB1, OR-2," Revision 4
PFP-PWR48, "Turbine Building / Elevation 300' Fire Area / Zone IE/TB-1," Revision 4

Documents
JAF-RPT-04-00478, "JAF Fire Hazards Analysis," Revision 2

### Section 1R06: Flood Protection Measures

Procedures
ESP-50.003, "PSA Related Floor Drain Flow Test," Revision 0, completed March 30, 2011

Documents
JAF-NE-09-00001, "JAF Probabilistic Safety Assessment," Appendix C-Internal Flooding, Revision 0
JAF-NE-09-00001, "JAF Probabilistic Safety Assessment," Appendix M-Supporting Analyses, Revision 0

## Section 1R07: Heat Sink Performance

Procedures
ST-8Q, "Testing of the Emergency Service Water System (IST)," Revision 42, Conducted June 2012

Documents
ECR 141114, "During Annual Performance Testing 66UC-22A, -22B, -22D, -22K and 67UC-16B did not Attain a Maximum Lake of 85 Degrees Fahrenheit," Approved 7/2/12
System Health Report, System 46 - Emergency Service Water, First and Second Quarter 2012

## Section 1R08: Inservice Inspection Activities

NDT Examination Reports
ISI-VT-12-027, "Visual Examination of Vertical Support 10-14B-AN-246 RHR System"
ISI-UT-12-020, "Ultrasonic Manual Exam of Branch Connection 22-02-2-21 Reactor Coolant (RC)"
ISI-MT-12-010, "Magnetic Particle Exam of Integral Attachment 24-10-992, RHR System"
ISI-PT-12-002, "Liquid Penetrant Exam of Nozzle to Safe end, Reactor Vessel at El 327"
ISI-PT-12-003, "Liquid Penetrant Exam of Safe End-Pipe Coupling"

NDT Examination Procedures
CEP-NDE-0641, "Liquid Penetrant Exam (PT) for ASME Section XI," Revision 7
CEP-NDE-0731, "Magnetic Particle Exam (MT) for ASME Section XI," Revision 3
CEP-NDE-0400, "Ultrasonic Exam Procedure for Fitzpatrick (Generic)," Revision 3
CEP-NDE-0505, "Ultrasonic Thickness Examination," Revision 4
CEP-NDE-0901, "VT-1 Visual Examination," Revision 4
CEP-NDE-0902, "VT-2 Visual Examination – Leakage," Revision 7
CEP-NDE-0903, "VT-3 General Visual Mechanical," Revision 5
CEP-NDE-0404, "Ultrasonic Exam of Ferritic Piping Welds (ASME XI)," Revision 4
PRO-ISI-UT-0002, "Auto Ultrasonic Examination of Jet Pump Assembly Welds," Revision 1
NDE-1, "Procedure for Training, Examination and Certification of NDE Personnel"
CEP-NDE-0111, "Certification of Ultrasonic Examination Personnel in Accordance with ASME Section XI, Appendix VII," Revision 3

Condition Reports

| | | |
|---|---|---|
| CR-JAF-2012-06302 | CR-JAF-2012-06033 | CR-JAF-2010-05936 |

Work Orders

| | | |
|---|---|---|
| WO 0000275816 | WO 0019947012 | WO 0019947011 |

Miscellaneous
Relief Request No. 3, "Risk-Informed Inservice Inspection Program (4th 10 year interval)"
MSK-3001, "Reactor Water Recirculation System Piping Isometric"
MSK-1158, "Safe End-Pipe Coupling Reactor Coolant"
DWG 6.21-10-345B, "Pipe Support H10-345 Relief Valve Discharge Line"
DWG ISI-FW-47A, "Nuclear Boiler Vessel Instruments System 02-3"
WPS-BM-8/1-B R0, "Weld Procedure Specification for Gas Tungsten Arc Welding (GTAW) of P8 Stainless Steel to P1 Carbon Steel and Procedure Qualification Records 094 and 606"

**Section 1R11: Licensed Operator Requalification Program**

Procedures
OP-13D, "RHR-Shutdown Cooling," Revision 23
OP-65, "Startup and Shutdown Procedure," Revision 113
AOP-41, "Feedwater Malfunction," Revision 9
AOP-59, "Loss of RPS Bus A Power," Revision 7
EOP-2, "RPV Control," Revision 9
EOP-3, "Failure to Scram," Revision 9
EP-3, "Backup Control Rod Insertion," Revision 8
EP-4, "Boron Injection Using CRD System," Revision 2

**Section 1R12: Maintenance Effectiveness**

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

Documents
Functional Failure Determination for CR-JAF-2012-0878
Functional Failure Determination for CR-JAF-2012-0910
Functional Failure Determination for CR-JAF-2011-4736
Functional Failure Determination for CR-JAF-2011-4749
Functional Failure Determination for CR-JAF-2012-0781
Functional Failure Determination for CR-JAF-2012-3668
JAF-RPT-FPS-02496, "Maintenance Rule Basis Document System 076 Fire Protection System," Revision 10
System Health Report, "System 76 - Fire Protection System, First and Second Quarter 2012"
JAF-RPT-CAS-02304, "Maintenance Rule Basis Document System 39, Instrument Air System," Revision 5
System Health Report for Instrument Air System / Service Air System / Breathing Air System for fourth quarter 2011 through third quarter 2012

Condition Reports

| | | |
|---|---|---|
| CR-JAF-2011-00269 | CR-JAF-2011-00940 | CR-JAF-2012-00781 |
| CR-JAF-2011-00847 | CR-JAF-2011-04090 | CR-JAF-2012-01500 |
| CR-JAF-2011-00878 | CR-JAF-2011-04749 | CR-JAF-2012-02386 |
| CR-JAF-2011-00910 | CR-JAF-2011-06654 | CR-JAF-2012-03668 |
| CR-JAF-2008-03084 | CR-JAF-2011-02632 | CR-JAF-2011-06341 |
| CR-JAF-2008-03308 | CR-JAF-2011-03313 | CR-JAF-2012-02445 |
| CR-JAF-2008-04280 | CR-JAF-2011-03314 | CR-JAF-2012-00023 |
| CR-JAF-2010-03263 | CR-JAF-2011-03315 | CR-JAF-2012-00875 |
| CR-JAF-2011-01706 | CR-JAF-2011-04973 | CR-JAF-2012-01554 |
| CR-JAF-2011-02183 | CR-JAF-2011-05006 | |

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Procedures
AP-10.10, "On-Line Risk Assessment," Revisions 7 and 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**

Procedures
EN-OP-104, “Operability Determination Process,” Revision 6
OP-18, “Reactor Protection System,” Revision 29

Documents
DBD-005, Design Basis Document for the Reactor Protection System, Revision 4
DBD-046, Design Basis Document for the Normal Service Water, Emergency Service Water, RHR Service Water Systems, Revision 18
WO 00322868

Condition Reports
CR-JAF-2012-04359 CR-JAF-2012-04963

**Section 1R19: Post Maintenance Testing**

Procedures
ST-4E, “HPCI and SGT Logic System Functional and Simulated Automatic Actuation Test,” Revision 54
OP-25, “Control Rod Drive Hydraulic System,” Revision 80
ST-2AM, “RHR Loop B Quarterly Operability Test (IST),” Revision 33
ST-41D, “Remote Valve Position Indication Verification Online (IST),” Revision 18
ESP-13.002, “RHR Loop B Suction Valve and Torus Cooling Valve Interlock Test,” Revision 0
MST-071.20, “125 VDC Station Battery Service Test,” Revision 33

**Section 1R20 Refueling and Other Outage Activities**

Procedures
AP-10.09, “Outage Risk Assessment,” Revisions 31 and 32
OP-13D, “RHR-Shutdown Cooling,” Revision 23 and 24
OP-30A, “Refueling Water Level Control,” Revision 15 and 16
OP-65, “Startup and Shutdown Procedure,” Revision 113

Documents
R20, “Schedule Risk Assessment Based on Schedule Issued 8/6/12, dated 9/15/12,” Revision 1

**Section 1R22: Surveillance Testing**

Condition Reports
CR-JAF-2012-04962 CR-JAF-2012-04992 CR-JAF-2012-05100
CR-JAF-2012-04963 CR-JAF-2012-05099 CR-JAF-2012-05163

**Section 1EP4: Emergency Action Level and Emergency Plan Changes**

Procedures
EAP 1.1, “Offsite Notifications,” Revision 68
EAP 14.7, “Remote Assembly Area Activation,” Revision 0

**Section 2RS5: Radiation Monitoring Instrumentation**

Procedures

EN-RP-302, "Operation of Radiation Protection Instruments," Revision 1
EN-RP-303, "Source Checking of Radiation Protection Instrumentation," Revision 3
EN-RP-306, "Calibration and Operation of the Eberline PM-7," Revision 2
EN-RP-307, "Operation and Calibration of the Eberline Personal Contamination Monitors," Revision 2
EN-RP-308, "Operation and Calibration of Gamma Scintillation Tool Monitors," Revision 5
EN-RP-310, "Operation and Initial Set up of the Eberline AMS-4 Continuous Air Monitor," Revision 3
RP-INST-02.01, "Teletector Survey Meter, Model 6112B," Revision 3
RP-INST-02.02, "Dose Rate Meter, RO7," Revision 3
RP-INST-02.04, "Count Rate Meter, Ludlum Model 177," Revision 6
RP-INST-02.05, "Geiger Mueller Survey Meter," Revision 3
RP-INST-02.06, "Dose Rate Meter, Bicron Micro-Rem," Revision 3
RP-INST-02.07, "Neutron Survey Instrument," Revision 5
RP-INST-02.08, "Ion Chamber Dose Rate Meter," Revision 5
RP-INST-02.09, "Calibration of Mini-Scaler MS-2 and MS-3," Revision 4
RP-INST-02.10, "Scintillation Alpha Counter, Eberline Model SAC4," Revision 3
RP-INST-03.01, "Area Radiation Monitors," Revision 3
RP-INST-03.03, "Containment Radiation Monitor System Response Test and Preplanned Alternate Monitoring Method," Revision 9
RP-INST-03.04, "PASS Radiation Monitor," Revision 2
RP-INST-04.01, "Area Radiation Monitor, Dosimeter Corporation," Revision 5
RP-INST-04.02, "Calibration of the Whole Body Contamination Monitor IPM," Revision 6
RP-INST-04.03, "Canberra Fast Scan Whole Body Counter Operation," Revision 1
RP-INST-04.06, "Portal Monitor, NNC Model Gamma 10 Calibration," Revision 2
RP-INST-04.07, "Area Radiation Monitor, AMP-100/200," Revision 3
RP-INST-04.08, "MGPI Telepole WR Extendable GM Survey Meter," Revision 3
RP-INST-04.12, "Operation & Calibration of the SAM-12," Revision 0
RP-INST-05.01, "Condenser R Meter," Revision 0
RP-INST-05.02, "Electrometer, Victoreen Model 500," Revision 1
RP-INST-05.03, "Calibrator, J.L. Shepard Model 89," Revision 2
RP-INST-05.04, "Irradiator, Shepard Panoramic Model 142-10," Revision 5
RP-RESP-02.04,"Cascade Air Systems," Revision 6
RP-RESP-04.10, "Constant Air Monitor, Eberline Model AMS-4," Revision 8
SP-03.01, "Main Steam Line and SJAE Radiation Monitor Calibration," Revision 13
SP-03.07, "Liquid Process Radiation Monitors," Revision 7
SP-03.08HR, "High Range Effluent Monitors," Revision 0
SP-03.08RF, "Refuel Floor Gaseous Effluent Monitors," Revision 1
SP-03.08RX, "Reactor Building Gaseous Effluent Monitors," Revision 1
SP-03.08RW, "Radwaste Bldg Gaseous Effluent Monitors Monitor," Revision 1
SP-03.08STK, "Stack Effluent Monitors," Revision 2
SP-03.08TB, "Turbine Bldg Gaseous Effluent Monitors," Revision 1

Condition Reports

| | | |
|---|---|---|
| CR-JAF-2011-00873 | CR-JAF-2011-02453 | CR-JAF-2011-05163 |
| CR-JAF-2011-01419 | CR-JAF-2011-02959 | CR-JAF-2011-05530 |
| CR-JAF-2011-01833 | CR-JAF-2011-03637 | CR-JAF-2011-06212 |
| CR-JAF-2011-02401 | CR-JAF-2011-04513 | CR-JAF-2011-06556 |

| | | |
|---|---|---|
| CR-JAF-2011-06643 | CR-JAF-2012-01596 | CR-JAF-2012-02466 |
| CR-JAF-2011-06722 | CR-JAF-2012-01752 | CR-JAF-2012-03992 |
| CR-JAF-2012-00098 | CR-JAF-2012-02259 | CR-JAF-2012-03993 |
| CR-JAF-2012-00606 | CR-JAF-2012-03991 | CR-JAF-2012-03994 |

Instrument Calibrations Reviewed
Model RO-20 Ion Chamber Survey Meter, (#1107, 4/11/11, 10/12/11)
Bicron Micro-Rem, (#546, 10/28/10), (#543, 3/30/11, 11/15/11)
Ludlum Model 9-3, (#1122, 11/7/11)
MGPI Telepole WR Extendable GM Survey Meter (#899, 7/27/11, 7/2/12)
PM-7 Portal Monitor (#730, 12/15/10, 12/12/11)
IPM Personal Contamination Monitor (#702, 3/16/11, 3/16/12)
MS-3 Scaler (#431, 4/11/12, 5/25/12)
SAM Small Article Monitor (#1203, 6/24/11, 6/19/12)
SAC-4 Alpha Scaler (#442 4/4/12)
AMP 100 Area Radiation Monitor (#600-197, 5/7/11, 5/7/12)
E-600 REM Ball Neutron Radiation Survey Instrument (#212, 6/28/11, 5/24/12)
AMS-4 Continuous Air Monitor (#1322, 5/4/11, 4/26/12)
Canberra Fast Scan Whole Body Counter (5/2/12)
Main Steam Line and SJAE Radiation Monitor Calibration (17RM-150A, 5/16-18/12)
Stack High Range Effluent Monitors (17RM-53A, 11/9-23/11)
Radwaste Building Gaseous Effluent Monitors (17RM-458B, 9/11-14/11)
Liquid Process Radiation Monitors (17RM-351, 9/27-30/11, 1/2-3/12)
Reactor Building Gaseous Effluent Radiation Monitor (17RM-452A, 11/7-10/11) (17RM-452B, 1/2-3/12, 2/21-23/12)
Turbine Building Gaseous Effluent Radiation Monitor (17RM-431, 4/23-24/12, 6/16-25/12) (17RM-432, 8/31/11-9/1/11)
Post Accident Turbine Building High Range Gaseous Effluent Radiation Monitor (ISP-25-1) (17RM-434A, 9/7-16/11) (17RM-434B, 9/26-30/11)
Turbine Building Exhaust Flow Indicator (17FI-431, 6/2/09,7/25/11), (17FI-432, 12/02/09, 2/21/12)

Audits/Self-Assessments
QA-2-6-2011-JAF-1 Combined Chemistry, Effluents, and Environmental Monitoring Program, August 22, 2011 through September 22, 2011
QA-14/16-2011JAF-1 Radiation Protection and Radwaste Program, October 11, 2011 through November 10, 2011

**Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment**

Procedures
CA-01.03, “Contamination of a Non-Radioactive System,” Revision 1
CHSO-10, “Groundwater Monitoring Program,” Revision 0
EN-CY-109, “Sampling and Analysis of Groundwater Monitoring Wells,” Revision 2
EN-CY-111, “Radiological Groundwater Monitoring Program,” Revision 2
EN-DC-343, “Underground Piping and Tanks Inspection and Monitoring Program,” Revision 5
EN-RP-113, “Response to Contaminated Spills / Leaks,” Revision 5
SP-01.05, “Wastewater Sampling and Analysis,” Revision 13
SP-01.06, “Gaseous Effluent Sampling and Analysis,” Revision 15
SP-01.11, “Unmonitored Paths Sampling and Analysis,” Revision 21

Audits/Self-Assessments
LO# JAFLO-2012-00022 Radioactive Gaseous and Liquid Effluent TreatmentJuly 2-12, 2012
QA-2-6-2011-JAF-1 Combined Chemistry, Effluents, and Environmental Monitoring Program, August 22, 2011 through September 22, 2011

Liquid Releases
2011314, 2011315, 2011316, 2011317, 2011318, 2011319, 2011320

Condition Reports

| | | |
|---|---|---|
| CR-JAF-2002-03695 | CR-JAF-2011-05951 | CR-JAF-2012-03023 |
| CR-JAF-2010-04474 | CR-JAF-2012-01740 | CR-JAF-2012-03422 |
| CR-JAF-2011-00519 | CR-JAF-2012-02459 | CR-JAF-2012-03901 |

**Section 4OA2: Identification and Resolution of Problems**

Plant Modifications/Engineering Changes
EC-32394, Technical Input to Support Operability: ATTS Card Seismic Concern
CR-JAF-2011-05040, CA-01, Revision 0
D1-92-082, Rosemount Trip/Calibration Unit 510DU Replaced by 710DU, Revision 0
EC-34072, Mark-Up of JAF-CALC-RHR-00272 R/1 Based on Evaluation Provided in LO-LAR-2011-008 CA#122, Revision 0
EC-34659, Mark-Up of JAF-CALC-CSP-02688 R/0 Based on Evaluation Provided in LO-LAR-2011-008 CA#122, Revision 0

Procedures
EN-LI-102, "Corrective Action Process," Revision 19
ENN-IC-G-003, “Instrument Loop Accuracy and Setpoint Calculation Methodology,” Revision 0
ST-40D, “Daily Surveillance and Channel Check,” Revisions 107 and 108
ST-24J, “RCIC Flow Rate and Inservice Test (IST),” Revision 42
ST-4N, “HPCI Quick-Start, Inservice, and Transient Monitoring Test (IST),” Revision 62

Documents
G080-0207, “Vendor Manual for Operation and Maintenance Instructions - Analog Trip Unit,” Revision 2
DBD-070, “Design Bases Document - Control Room and Relay Room Ventilation and Cooling Systems,” Revision 10
FSAR Figure 7.2-2, “Schematic Diagram of Logics in One Trip System,” Revision 3
FSAR Figure 7.3-1, “Typical Isolation Control System Using Motor Operated Valves,” Revision 0
FSAR Figure 7.3-2, “Typical Isolation Control System for Main Steam Isolation Valves,” Revision 0
FSAR Figure 7.4-4, “Typical ECCS Trip System Actuation Logic,” Revision 0
System Performance Monitoring Plan for System 19, Spent Fuel Pool, dated March 26, 2012
JAF-RPT-FPC-02288, “Maintenance Rule Basis Document System 019 Fuel Pool Cooling,” Revision 2

Condition Reports

| | | |
|---|---|---|
| CR-JAF-2010-07491 | CR-JAF-2011-02390 | CR-JAF-2008-00047 |
| CR-JAF-2012-02256 | CR-JAF-2012-05388* | CR-JAF-2010-07395 |
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Work Orders

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Calculations

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JAF-CALC-HPCI-00275, 23LS-74A, 23LS-74B, 23LS-75A, 23LS-75B Condensate Storage Tank (CST) Low Level Switches Setpoint Calculation, Revision 3
JAF-CALC-MULT-00215, HPCI/RCIC Area Hi-Temp Isolation, Revision 4
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JAF-CALC-NBI-00225, Reactor Vessel High Pressure ATWS-RPT Initiation Setpoint Calculation, Revision 7

**Section 4OA5: Other Activities**

Miscellaneous

72.48, “Screening Evaluation Number 967,” Revision 0
AP-05.18, “ISFSI Pad Vehicle/Equipment Control,” Revision 0
ENF-NF-200, “Special Nuclear Material Control,” Revision 6
Holtec International, Component Completion Record No. 3, HI-STORM 100S Overpack
JAF Independent Spent Fuel Storage Installation, Inventory Account Form
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10 CFR 72.212 Evaluation Report
MP-019.11, “Dry Fuel Storage Cask Ancillary Equipment Inspection,” Revision 2
MP-019.15, “HI-STORM Overpack Annual Inspection,” Revision 4
RAP-7.2.07, “Fuel Selection for Dry Cask Storage,” Revision 6
RPS-7.2.08, “Routine Surveys and Inspections,” Revision 18
ST-32B, “Overpack Heat Removal System Operability Test,” Revision 7

Condition Report

CR-JAF-2009-02812

Work Orders

WO 51103080

## LIST OF ACRONYMS

| | |
|---|---|
| 10 CFR | Title 10, Code of Federal Regulations |
| ACE | apparent cause evaluation |
| ADAMS | Agencywide Documents Access and Management System |
| ALARA | as low as is reasonably achievable |
| ARM | area radiation monitor |
| ARMS | area radiation monitoring system |
| ASME | American Society of Mechanical Engineers |
| ATTS | analog transmitter trip system |
| CAM | continuous atmospheric monitor |
| CAP | corrective action program |
| CoC | certificate of compliance |
| CR | condition report |
| CST | condensate storage tank |
| ECCS | emergency core cooling system |
| EDG | emergency diesel generator |
| Entergy | Entergy Nuclear Northeast |
| ESW | emergency service water |
| FitzPatrick | James A. FitzPatrick Nuclear Power Plant |
| GPI | groundwater protection initiative |
| gpm | gallons per minute |
| HPCI | high pressure coolant injection |
| HSM | horizontal storage module |
| IMC | inspection manual chapter |
| ISFSI | independent spent fuel storage installation |
| ISI | in-service inspection |
| IST | in-service test |
| LER | licensee event report |
| LOCA | loss of coolant accident |
| MSIV | main steam isolation valve |
| NCV | non-cited violation |
| NDE | nondestructive examinations |
| NEI | Nuclear Energy Institute |
| NIST | National Institute of Standards and Technology |
| NRC | Nuclear Regulatory Commission |
| ODCM | offsite dose calculation manual |
| PARS | Publicly Available Records |
| PCM | personnel contamination monitor |
| PI | performance indicator |
| PM | portal monitor |
| PMT | post-maintenance test |
| PT | penetrant test |
| R20 | refueling outage 20 |
| RCIC | reactor core isolation cooling |
| RETS | radiological effluents technical specifications |
| RG | Regulatory Guide |
| RHR | residual heat removal |
| RWR | reactor water recirculation |

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|---|---|
| SAM | small article monitor |
| SDP | significant determination process |
| SFP | spent fuel pool |
| SGT | standby gas treatment |
| SSC | structure, system, or component |
| ST | surveillance test |
| TI | temporary instruction |
| TRM | technical requirements manual |
| TS | technical specification |
| UFSAR | updated final safety analysis report |
| UHS | ultimate heat sink |
| UT | ultrasonic testing |
| VAC | volt alternating current |
| VDC | volt direct current |
| WO | work order |