

November 6, 2003

Mr. Theodore Sullivan  
Vice President - Operations  
Entergy Nuclear Northeast  
James A. FitzPatrick Nuclear Power Plant  
Post Office Box 110  
Lycoming, NY 13093

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT - NRC INTEGRATED  
INSPECTION REPORT 05000333/2003008

Dear Mr. Sullivan:

On September 27, 2003, the US Nuclear Regulatory Commission (NRC) completed an inspection at your James A. FitzPatrick Nuclear Power Plant. The enclosed integrated inspection report documents the inspection findings which were discussed on October 15, 2003 with Mr. O'Grady and other members of your staff.

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

This report documents one NRC-identified finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a non-cited violation, in accordance with Section VI.A of the NRC's Enforcement Policy.

If you deny the non-cited violation noted in this report, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, 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; and the NRC Resident Inspector at FitzPatrick.

Since the terrorist attacks on September 11, 2001, the NRC has issued five Orders and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over access authorization. In addition to applicable baseline inspections, the NRC issued Temporary Instruction (TI) 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," and its subsequent revision to audit and inspect licensee implementation of the interim compensatory measures required by order. Phase 1 of TI 2515/148 was completed at all commercial power nuclear power plants during calendar year 2002, and the remaining inspection activities for FitzPatrick are scheduled for completion in calendar year 2003. The NRC will continue to monitor overall safeguards and security controls at FitzPatrick.

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Sincerely,

***/RA/***

Glenn W. Meyer, Chief  
Projects Branch 3  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000333/2003008  
w/Attachment: Supplemental Information

Mr. Theodore Sullivan

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cc w/encl:

G. Taylor, CEO, Entergy Operations

B. O'Grady, General Manager, Entergy Nuclear Operations

J. Knubel, VP Operations Support

H. Salmon, Director of Oversight

A. Halliday, Regulatory Compliance Manager

M. Kansler, President, Entergy

D. Pace, VP Engineering

J. Fulton, Assistant General Counsel

S. Baxter, Supervisor, Town of Scriba

S. Lyman, Oswego County Administrator

C. Donaldson, Esquire, Assistant Attorney General, New York Department of Law

P. Eddy, Electric Division, Department of Public Service, State of New York

W. Flynn, President, New York State Energy Research  
and Development Authority

S. Lousteau, Treasury Department

T. Judson, Central New York Citizens Awareness Network

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Region I Docket Room (with concurrences)

L. Cline, DRP, Senior Resident Inspector

D. Dempsey, Resident Inspector

H. Miller, RA

J. Wiggins, DRA

G. Meyer, DRP

S. Barber, DRP

J. Jolicoeur, OEDO

R. Laufer, NRR

G. Vissing, PM, NRR

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-333

License No.: DPR-59

Report No.: 05000333/2003008

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: James A. FitzPatrick Nuclear Power Plant

Location: 268 Lake Road  
Scriba, New York 13093

Dates: June 29, 2003 - September 27, 2003

Inspectors: L. M. Cline, Senior Resident Inspector  
D. A. Dempsey, Resident Inspector  
A. J. Blamey, Senior Operations Engineer  
J. C. Jang, Senior Health Physicist  
T. A. Moslak, Health Physicist  
D. M. Silk, Senior Emergency Preparedness Inspector

Approved by: Glenn W. Meyer, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000333/2003-008; 06/29/2003 - 09/27/2003; James A. FitzPatrick Nuclear Power Plant; Maintenance Rule.

The report covered a 13-week period of inspection by resident inspectors, a senior health physicist, and regional specialist inspectors. One Green non-cited violation (NCV) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process (SDP)." 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 3, dated July 2000.

### A. Inspector Identified and Self-Revealing Findings

#### Cornerstone: Mitigating Systems

- Green. A self-revealing finding occurred during a reactor core isolation cooling (RCIC) surveillance test on June 10, in which the system's flow controller did not automatically respond to maintain the proper RCIC flow after RCIC flow was manually decreased. This degraded condition resulted from inadequate preventive maintenance on the flow controller. The inspectors identified a violation for ineffective corrective action based on a similar flow controller problem, which had occurred in July 2000, but for which corrective actions did not properly address the extent of the condition, and the RCIC flow degradation recurred.

The finding is more than minor, because it affected the mitigating systems cornerstone attribute of equipment performance. The degraded condition of RCIC could have prevented the system from providing adequate flow to the reactor. Therefore, this deficiency affected the reliability and capability of a system that responds to initiating events to prevent undesirable consequences. In accordance with MC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors determined that this finding is of very low safety significance, because it was not a design or qualification deficiency, and it did not result in an actual loss of safety function for the RCIC system with respect to internal or external events. (Section 1R12)

### B. Licensee-Identified Violations

None.

## REPORT DETAILS

### Summary of Plant Status

The reactor operated at or near 100 percent power for most of the inspection period. On August 14 an automatic reactor scram occurred in response to grid instability. On August 17 the reactor was restarted and returned to full power on August 19. On September 25 reactor power was reduced to 50 percent following a reactor water recirculation (RWR) pump trip. On September 26 after repairs to the RWR pump speed controller, the reactor was returned to full power.

### **1. REACTOR SAFETY**

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

##### a. Inspection Scope

The inspectors completed the following two adverse weather protection samples:

- Since severe storm and high wind conditions were forecast in the vicinity of the facility for September 18 and 19, the inspectors reviewed Entergy's preparations for inclement weather conditions. The inspectors walked down accessible portions of the emergency service water (ESW) and residual heat removal (RHR) service water systems, the ultimate heat sink, emergency power supplies, and the switch yard. These systems were selected because their safety-related functions could be affected by adverse weather. The inspectors reviewed documents listed in the Attachment, evaluating those conditions using criteria contained in abnormal operating procedure (AOP)-13, "High Winds, Hurricanes, and Tornadoes."
- The inspector reviewed and verified completion of the operations department warm weather preparation checklist contained in procedure AP-12.04, "Seasonal Weather Preparations." The inspector reviewed the operating status of the turbine building cooling systems, reviewed the procedural limits and actions associated with elevated lake temperature, and walked down accessible areas of the building to assess the effectiveness of the ventilation systems. The walkdowns included discussions with operations and engineering personnel to ensure that they were aware of temperature restrictions and required actions.

##### b. Findings

No findings of significance were identified.

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1R04 Equipment Alignment (71111.04)a. Inspection Scope

Partial System Walkdowns. The inspectors performed four partial system walkdowns to evaluate the operability of the redundant train for the selected systems while the affected train was inoperable or out of service for maintenance on testing. The inspectors compared system lineups to system operating procedures (OPs), system drawings, and the applicable chapters in the updated final safety analysis report (UFSAR). The inspectors also verified the operability of critical system components by observing component material condition during the system walkdown and reviewing the maintenance history for each component. The inspectors performed the partial walkdowns on the following systems:

- High pressure coolant injection (HPCI) system while the RCIC system was out of service for planned maintenance on July 29
- Train A core spray (CS) while B CS was out of service for planned maintenance on August 12
- Train A standby liquid control (SLC) system while surveillance test (ST)-6HB, "SLC B Side Quarterly Operability Test" was performed on September 12
- Train B residual heat removal service water (RHRSW) system while Train A was out of service for corrective maintenance on September 25

Complete System Walkdown. The inspectors performed a complete walkdown of the emergency diesel generator (EDG) and support systems to identify any discrepancies between the existing equipment lineup and the required lineup. During the walkdown system drawings and OPs were used to verify proper equipment alignment and operational status. The inspectors reviewed the open maintenance work requests (WR) on the system for any deficiencies that could affect the ability of the system to perform its function. Documentation associated with unresolved design issues such as temporary modifications (TM), operator workarounds, or items tracked by plant engineering were also reviewed to assess their collective impact on system operation. In addition, the inspectors reviewed the condition report (CR) database to verify that equipment alignment problems were being identified and appropriately resolved.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)a. Inspection Scope

The inspectors toured ten areas important to reactor safety to evaluate conditions related to Entergy's control of transient combustibles and ignition sources; the material condition, operational status, and operational lineup of fire protection systems, equipment and features; and the fire barriers used to prevent fire damage or fire



propagation. The inspectors used administrative procedure (AP)-14.01, "Fire Protection Program," and AP-14.02, "Combustibles and Flammable Material Control" in conducting the inspection. The areas inspected included:

- Main control and ventilation equipment rooms, fire area 07/zone CR-1
- A EDG room, fire area 05/zone EG-1
- C EDG room, fire area 05/zone EG-2
- B EDG room, fire area 06/zone EG-3
- D EDG room, fire area 06/zone EG-4
- Train A EDG switchgear room south, fire area 05/zone EG-5
- Train B EDG switchgear room north, fire area 06/zone EG-6
- Reactor building, elevation 300 feet, fire area 09/zone RB-1A and fire area 10/zone RB-1B during the performance of temporary operating procedure (TOP)-342, "Deenergizing/Energizing 71MCC-164 & 71ACB5," when fire protection compensatory measures were required
- North turbine building, elevation 252 feet, fire area IE/zone TB-1
- South turbine building, elevation 252 feet, fire area IE/zone TB-1

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

Quarterly Review. On September 10 the inspectors observed licensed operator simulator training to assess operator performance during a scenario that involved a feedwater control system failure, turbine control valve closure and a subsequent failure to automatic scram followed by a torus leak. The inspectors evaluated the performance of risk significant operator actions, including the use of emergency operating procedures (EOPs), EOP-2, "Reactor Pressure Vessel Control," EOP-4, "Primary Containment Control," and EOP-5, "Secondary Containment Control." The inspectors assessed the clarity and effectiveness of communications, the implementation of appropriate actions in response to alarms, the performance of timely control board operation and manipulation, and the oversight and direction provided by the shift manager. The inspector also reviewed simulator fidelity to evaluate the degree of similarity to the actual control room.

Biennial Review. The inspectors conducted an in-office review of Entergy's annual operating tests and the biennial written examination results for 2003. The inspection assessed whether pass rates were consistent with the guidance of MC 0609, Appendix I, "Operator Requalification Human Performance SDP." The inspectors verified that:

- Crew failure rate was less than 20%. (Crew failure rate was 0%)
- Individual failure rate on the dynamic simulator test was less than or equal to 20%. (Individual failure rate was 0%)

- Individual failure rate on the walk-through test was less than or equal to 20%. (Individual failure rate was 0%)
- Individual failure rate on the comprehensive biennial written examination was less than or equal to 20%. (Individual failure rate was 4.5%)
- Overall pass rate among individuals for all portions of the examination was greater than or equal to 75%. (Overall pass rate was 95.4%)

The inspectors conducted an on-site inspection to review the reactor operator and senior reactor operator licenses at FitzPatrick. The inspector also reviewed FitzPatrick's biennial examination cycle and the licensed operator continuing training schedule.

b. Findings

No findings of significance were identified.

1R12 Maintenance Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed performance-based problems involving selected in-scope structures, systems and components (SSCs) to assess the effectiveness of the maintenance program. Reviews focused on proper maintenance rule scoping, in accordance with 10 CFR 50.65; characterization of reliability issues; charging system and component unavailability; 10 CFR 50.65 (a)(1) and (a)(2) classifications; identifying and addressing common cause failures, trending key parameters, and the appropriateness of performance criteria for SSCs classified (a)(2) and the adequacy of goals and corrective actions for SSCs classified (a)(1). The inspectors reviewed system health reports, maintenance backlogs, and maintenance rule basis documents. The following maintenance rule samples were reviewed:

- EDGs, System 93
- RCIC, System 13
- RHRSW, System 46

The inspectors reviewed the following:

- JAF-RPT-EDG-02303, "Maintenance Rule Basis Document for EDG System"
- JAF-RPT-MULTI-02294, "Maintenance Rule Basis Document for Service Water Systems"
- JAF-RPT-RCIC-02284, "Maintenance Rule Basis Document for RCIC System"

b. Findings

Introduction. A self-revealing finding occurred during an RCIC surveillance test on June 10, in which the system's flow controller did not automatically respond to maintain the

proper RCIC flow after RCIC flow was manually decreased. This degraded condition resulted from inadequate preventive maintenance on the flow controller. The inspectors identified a violation for ineffective corrective action based on a similar flow controller problem, which had occurred in July 2000, but for which corrective actions did not properly address the extent of the condition, and the RCIC flow degradation recurred.

Description. On June 10 during the performance of ST-24J, "RCIC Flow Rate and Inservice Test (IST)," RCIC was manually initiated with discharge to the condensate storage tanks through the test line. Following successful initiation the operator throttled the test control valve closed to establish discharge pressure for the IST portion of the surveillance. The system flow indicating controller 13FIC-91 did not automatically respond as expected to the decrease in system flow when the valve was throttled closed. Due to the unanticipated system response operators halted the test to consult the system engineer. Five minutes after the operator throttled the test control valve, the flow controller responded and returned flow to setpoint. Operators declared the system inoperable due to the unanticipated response of the flow controller. Entergy replaced the controller and restored the system to operable status following satisfactory completion of ST-24J on June 11.

Entergy's analysis determined that the flow controller's delayed response was caused by a dirty polarity reversing (REV/DIRECT) switch in the controller. This resulted in intermittent contact in the switch that prevented the controller from immediately responding to changes in the flow error signal. The failure of the controller to immediately respond to changes in flow could have prevented the RCIC system from providing adequate flow to the reactor during an event. Due to the design of the controller most of its internal components, including the REV/DIRECT switch, were exposed to the atmosphere and susceptible to oxidation, dust and other particulate. Because the REV/DIRECT switch was not normally operated, Entergy's analysis recommended adding a cleaning/exercising preventive maintenance task for that switch and other controller components susceptible to this failure mode.

A review of system history determined that RCIC had experienced a similar flow controller failure in July 2000. At that time engineering determined that a dirty cascade/local switch in the controller was the cause of the failure and recommended the implementation of a preventive maintenance task to clean that switch. The extent of condition for the issue did not evaluate the impact of failures of other switches and components in the controller that were exposed to the same environment. As a result, the need for cleaning/exercising the REV/DIRECT switch was not identified.

Analysis. The deficiency that resulted in the failure of the RCIC pump discharge flow controller during RCIC quick start testing on June 11 was inadequate corrective action for a similar July 2000 RCIC flow controller failure. It was more than minor because it affected the mitigating systems cornerstone attribute of equipment performance. The failure of the flow controller to respond to changes in system flow could have prevented RCIC from providing adequate flow to the reactor. Therefore, this deficiency affected the reliability and capability of a system that responds to initiating events to prevent

undesirable consequences. In accordance with MC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors determined that the finding was of very low safety significance, because it was not a design or qualification deficiency, and it did not result in an actual loss of safety function for the RCIC system with respect to internal or external events.

Enforcement. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," requires that measures shall be established to assure that conditions adverse to quality, such as malfunctions are promptly identified and corrected, and repetitions precluded. Contrary to the above, due to inadequate corrective actions involving a July 2000 RCIC flow controller failure, the RCIC flow controller did not properly restore system flow during RCIC quick start testing on June 10. Because the violation was of very low significance (Green) and Entergy entered the deficiency into its corrective action program (CR-2003-04906), this finding was treated as an NCV, consistent with Section VI.A of the Enforcement Policy. **(NCV 05000333/2003008-01)**

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

a. Inspection Scope

For the selected WRs listed below, the inspectors verified that risk assessments were performed in accordance with AP-10.10, "On-line Risk Assessment;" risk of scheduled work was managed through the use of compensatory actions and schedule adherence; and applicable contingency plans were properly identified in the integrated work schedule.

- WR 03-07948-02 that corrected high vibration on the A standby gas treatment (SGT) fan during the week of July 6
- WR 00-10344-00 that replaced the electrolytic capacitors in the B CS instrument power supply during the B CS maintenance window the week of August 9
- WR 01-02695-00 that performed RCIC system turbine inspections and overspeed testing during the RCIC maintenance window the week of July 28
- WR 03-09264-00 that troubleshoot failure of the A station air compressor the week of August 17
- WR 02-09532-02 and WR 03-09931-01 that performed corrective maintenance on leaking keep full check valve 10RHR-431A and the RHRSW strainer the week of September 21

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions (71111.14)

a. Inspection Scope

For the non-routine events described below, the inspectors reviewed operator logs, plant computer data, and strip charts to determine what occurred and how the operators responded, and to determine if the response was in accordance with plant procedures:

- On July 9 the inspectors observed operator response to an unexpected half scram in the control room. The half scram occurred during the performance of ISP-63-1, "Average Power Range Monitor Flow Bias Signal Instrument Calibration," when a technician opened the equalization valve on the wrong flow unit. The test was stopped immediately, the flow unit was restored to normal, and the half scram was reset.
- On July 30 the inspectors observed operators recover from an inadvertent isolation of the reactor water cleanup (RWCU) system. The isolation occurred during restoration from primary containment isolation system testing when a loose wire was accidentally jarred. The wire bundle was repaired and the RWCU system was restored in accordance with normal OPs.
- On August 14 the inspectors responded to the control room following an automatic reactor scram and loss of off-site power. Using emergency and abnormal operating procedures, operators placed the plant in cold shutdown with safety relief valves and the HPCI and RCIC systems. In response to degraded grid voltage, the EDGs automatically started and loaded onto the vital buses as designed.
- On September 15 the C service air compressor tripped due to high second stage temperature. Operators promptly entered AOP-12, "Loss of Instrument Air." System pressure recovered when the standby air compressor automatically started.
- On September 25 the B RWR pump tripped due to a failure of its speed controller. Operators promptly entered AOP-8, "Loss or Reduction of Reactor Coolant Flow." The plant was operated in accordance with the single loop operating limits of Technical Specification (TS) 3.4.1 and operators returned to two loop operation per OP-27, "Recirculation System" on September 26 following repairs to the B RWR pump speed control system.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed operability determinations to assess the acceptability of the evaluations, the use and control of compensatory measures if needed, and compliance with technical specifications. The inspector's review included a verification that the operability determinations were made as specified by AP-03.11, "Operability Determinations." The technical adequacy of the determinations was reviewed and compared to the TS, UFSAR, and associated design basis documents (DBD). The following evaluations were reviewed:

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- CR-03-04216 concerning failure of reactor building to torus vacuum breaker 27VB-6 during IST
- CR-2003-04194 concerning a design calculation input error that affected evaluation of the thermal performance of east electric bay unit cooler 67UC-16B
- CR-2003-03717 concerning the failure of the C EDG air start compressor discharge check valve
- CR-2003-03818 concerning an out of tolerance off-gas dryer hydrogen indication transmitter discovered during the instrument channel functional test
- CR-2003-03422 concerning the impact of a partition wall in the operations assistant manager's office on the control room ventilation envelope
- CR-2003-04382 concerning water in the HPCI lubricating oil sump

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors completed two operator workaround inspection samples by evaluating individual and cumulative effects of identified operator burdens and workarounds on the functionality of plant mitigating systems. The workarounds were reviewed to determine if the functional capability of the system or human reliability in responding to an initiating event was affected; the effect on the operators' ability to implement abnormal or emergency procedures; and if operator workaround problems were captured in Entergy's corrective action program. The inspectors also reviewed Entergy's assessment of the cumulative effects of the identified workarounds in accordance with ST-99H, "Operator Work Arounds Assessment."

- Manual operation of generator leads cooling system
- Manual operation of condenser hotwell makeup flow control valves

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspector reviewed modification and post-installation test documents involving modification no. JD-03-005, "Keep-full Level Switch Replacement." The modification replaced the original ultrasonic switches with thermal dispersion type switches in the RHR, RHRSW, and CS systems.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed post-maintenance test procedures and associated testing activities for selected risk significant mitigating systems to assess whether the effect of testing on the plant had been adequately addressed by control room and engineering personnel; testing was adequate for the maintenance performed; acceptance criteria were clear and adequately demonstrated operational readiness, consistent with design and licensing basis documents; test instrumentation had current calibrations, range, and accuracy for the application; tests were performed, as written, with applicable prerequisites satisfied; and that equipment was returned to the status required to perform its safety function. The following WRs were reviewed:

- WR 03-09514-00 and 03-09450-00 involving troubleshooting and repair of reactor building to torus vacuum breaker 27VB-6. The retest was performed using ST-15G, "Pressure Suppression Chamber - Reactor Building Vacuum Breaker Operability and Setpoint Test (IST)."
- WR 01-02695-00 involving preventive maintenance on the RCIC turbine during the week of July 27. The retest was performed using ST-24J, "RCIC Flow Rate and IST," ST-24Q, "RCIC Turbine Slow Roll and Overspeed Test," and Mechanical Surveillance Test Procedure -13.01, "RCIC Turbine Mechanical Overspeed Trip Test & Adjustment."
- WR 03-08938-00 involving replacement of a failed-open EDG air start check valve. The retest was performed in accordance with the WR procedure.
- WR 01-04022-01 that performed preventive maintenance on the circuit breaker for the CS minimum flow isolation valve 14MOV-5B. The retest was performed by cycling the breaker and stroking 14MOV-5B in accordance with the WR.
- WR 00-10858-00 involving the replacement of the high pressure sensor multiplier relay for the B main steam leakage collection system (MSLCS) SGT system isolation valve. The retest was performed using ST-1N, "MSLCS Valve Exercise."
- WR 02-02035-14 involving the replacement of two inch ESW supply piping to west crescent area unit cooler 66UC-22K. The retest was performed using TST-103, "Testing of ESW Loop B."
- WR 02-02034-14 involving the replacement of ESW supply and return piping of west crescent area unit cooler 6UC-22J. The retest was performed using ST-8Q, "Testing of the ESW System (IST)."

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors observed and reviewed the following activities during FitzPatrick forced outage 162 from August 14 to 18.

- Outage Plan: The inspectors reviewed outage schedules and procedures, and verified that TS-required safety system availability was maintained, shutdown risk was considered, and contingency plans existed to restore key safety functions such as electrical power and containment integrity.
- Plant shutdown and cooldown: The inspectors observed operators implement emergency and abnormal operating procedures following the automatic reactor scram, and the subsequent plant cooldown. Due to inability to reset the scram expeditiously, the TS cooldown and heatup rate limits for the reactor vessel bottom head were exceeded. The inspectors verified that a bottom head thermal transient evaluation was satisfactorily performed in accordance with the TS.
- The inspectors periodically verified the proper alignment and operation of the shutdown cooling and reactor coolant makeup systems.
- The inspectors observed portions of the reactor startup following the outage, and verified through plant walkdowns, control room observations, and surveillance test reviews that safety-related equipment required for mode change was operable, that containment integrity was set, and that reactor coolant boundary leakage was within TS limits.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors witnessed performance of surveillance tests and reviewed test data of selected risk-significant SSCs to assess whether the SSCs satisfied TS, UFSAR, technical requirements manual, and Entergy procedure requirements. The inspectors assessed whether the testing appropriately demonstrated that the SSCs were operationally ready and capable of performing their intended safety functions. The following tests were witnessed:

- ST-2XA, "RHR Service Water Loop A Quarterly Operability Test (IST)"
- ST-15G, "Pressure Suppression Chamber - Reactor Building Vacuum Breaker Operability and Setpoint Test (IST)"
- ST-7BA, "Monthly SGT Train A Run"
- ST-9BA, "EDG A and C Full Load Test and ESW Pump Operability Test"
- ST-9R, "EDG System Quick Start-Operability Test"



- ISP-66-4, "Scram Discharge Instrument Volume Water Level Transmitter Calibration"
- ISP-100DRPS, "Reactor Protection System Instrument Functional Test/Calibration"
- ST-6HB, "SLC B Side Quarterly Operability Test"
- ST-8Q, "Testing of the ESW System (IST)"

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed TM 03-022, which installed a temporary air compressor for the plant instrument air system. The temporary compressor serves as a second backup while permanent compressor 39AC-2A is out of service for repair. The inspectors assessed the adequacy of the 10 CFR 50.59 evaluation; that the installation was consistent with the modification documentation; that drawings and procedures were updated as applicable; and the adequacy of the post-installation testing. The inspectors also reviewed the results of ST-99G, "Temporary Modification Monthly Audit."

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

An in-office inspection that reviewed recent changes to the emergency plan and implementing procedures was performed on August 12. A thorough review was conducted for documents related to the risk significant planning standards (RSPS) and a general review was completed for non-RSPS documents. The review verified the changes, satisfied the standards of 10 CFR 50.54(q), 10 CFR 50.47(b), the requirements of 10 CFR 50 Appendix E, the intent of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" and that the changes did not decrease the effectiveness of the plan. These changes are subject to future NRC inspections to ensure that as a result of these changes the emergency plan continues to meet NRC regulations.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed simulator activities associated with the site's emergency planning drill on September 25. The inspectors verified that emergency classification declarations and notification activities were properly completed in accordance with the emergency plan.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

Cornerstone: Occupational Radiation Safety

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

The inspector performed the following activities to verify that Entergy properly implemented operational, engineering, and administrative controls to maintain personnel exposure as low as reasonably achievable (ALARA) for tasks during power operations. The inspector verified that implementation of these controls was in accordance with the criteria contained in 10 CFR 20, industry standards and Entergy procedures.

Radiological Work Planning

- The inspector reviewed pertinent information regarding cumulative exposure history, current exposure trends, and ongoing activities to assess current performance and exposure challenges. The inspector determined FitzPatrick's 3-year rolling collective average exposure.
- The inspector reviewed the exposure estimates for on-line maintenance scheduled during the inspection period. Scheduled work reviewed included maintenance on unit cooler 66UC-22K.
- The inspector reviewed procedures for maintaining worker dose ALARA and estimating and tracking work activity specific exposure.
- The inspector reviewed the 2003 ALARA review summary list that detailed worker estimated and actual exposures to date for jobs performed during power operations and recent equipment maintenance outages.

- The inspector evaluated ALARA review (AR)-03-023 for the replacement of the A RWCU pump in April 2003, and the B RWCU pump motor and seals in May 2003. The inspector evaluated the exposure mitigation requirements and compared actual worker cumulative exposure to estimated dose.
- The inspector evaluated the departmental interfaces between radiation protection, operations, maintenance, system engineering, and the fix-it-now (FIN) team to identify missing ALARA program elements and interface problems. The inspector interviewed the ALARA department coordinators and reviewed departmental ALARA action plans.
- The inspector compared the person-hour estimates provided by maintenance planning and other work groups with actual work activity time requirements and evaluated the accuracy of these estimates. The inspector reviewed the time estimates for the replacement of the A RWCU pump in April 2003, and the B RWCU pump motor and seals in May 2003.
- The inspector verified that work activity planning considered the use of temporary shielding, system flushes, relaxation of preventive maintenance frequencies, job re-scheduling, and operational considerations such as the reduction of hydrogen injection rates to further minimize worker exposure.
- The inspector reviewed in-progress, and post-job ARs for the A and B RWCU pump maintenance activities to verify that problem areas and lessons learned during the activity were addressed.

#### Verification of Dose Estimates

- The inspector reviewed the assumptions and basis for the current annual collective exposure estimate and the multi-year dose reduction plan.
- The inspector reviewed Entergy's method for adjusting exposure estimates and planning work when emergent work is encountered.
- The inspector reviewed Entergy's exposure tracking system to determine whether the dose tracking detail, exposure report timeliness, and exposure report distribution were sufficient to support the control of collective exposures. Included in this review were the radiation work permits (RWP) for the 66UC-22K maintenance, RWP 03-020, and the RWCU pump maintenance tasks, RWP-03-057.

#### Job Site Inspection and ALARA Control

- The inspector observed portions of the 66UC-22K maintenance. The inspector verified that radiological controls that include required surveys, job coverage, and contamination controls were implemented; that personnel dosimetry was properly worn; and workers were knowledgeable of ambient radiological conditions.

- The inspector reviewed the exposure data for individuals in operations, mechanical maintenance, radiation protection, system engineering, and the FIN team to determine if supervisory efforts were made to equalize doses for workers.

#### Source Term Reduction and Control

- The inspector reviewed the current status and historical trends of FitzPatrick source terms. Through interviews with the chemistry manager and the ALARA manager, the inspector evaluated Entergy's source term control strategy.

#### Radiation Worker Performance

- The inspector observed radiation worker and radiation protection technician performance during the 66UC-22K maintenance performed in a radiation area. The inspector verified that the skill level was sufficient with respect to the radiological hazards and the work involved.

#### b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

### 2PS3 Radiological Environmental Monitoring Program (71122.03)

#### a. Inspection Scope

Radiological Environmental Monitoring Program (REMP): The inspector reviewed the following documents to evaluate the effectiveness of Entergy's REMP at the site, the environmental laboratory in Fulton, NY, and EA Engineering Science and Technology, in Oswego, NY. The requirements of the REMP are specified in the TS and Offsite Dose Calculation Manual (ODCM).

#### Environmental Laboratory

- Analytical results for 2003 REMP samples
- Calibration results for gamma, alpha/beta, and tritium measurement instruments
- Implementation of the quality control (QC) program
- Review of the 2003 gamma, alpha/beta, and tritium QC charts
- Implementation of the interlaboratory and intralaboratory comparisons
- Implementation of the environmental thermoluminescent dosimeters (TLDs) program
- Associated sampling and analytical REMP procedures
- Analysis of total uncertainties associated with routine radioassays performed by the environmental laboratory

EA Engineering Science and Technology

- Aquatic and terrestrial sampling procedures
- Land use census procedure for residence and garden for 2003 and the results for 2002

Site

- Most recent ODCM changes
- 2002 annual REMP report
- Most recent calibration results of the meteorological monitoring instruments for wind direction, speed, and temperature for the primary and backup towers
- Most recent calibration results for TS/ODCM air samplers
- Review of the 2002/2003 meteorological monitoring data recovery statistics
- 2003 NQA Audit Report No. AO3-O1J for REMP/ODCM implementations

Tours and Observations

- Operability of the meteorological monitoring instruments at the tower and the control room
- Environmental laboratory activities
- Iodine/particulate air sampling techniques
- Material condition and location of all air samplers, milk farms, and 25% TLDs

Radioactive Material Control Program: To verify that Entergy met the requirements of its program for unrestricted release of material from the radiologically controlled area (RCA) the inspector reviewed the following documents using criteria contained in 10 CFR 20, NRC Circular 81-07, NRC Information Notice 85-92, NUREG/CR-5569, health position data base positions 221 and 250, and Entergy procedures.

- Most recent calibration results for the radiation monitoring instrumentation
- Entergy's criteria for the survey and release of potentially contaminated material using a gamma spectroscopy
- Methods used for control, survey, and release from the RCA
- Procedures and records used to verify lower limits of detection for bulk sample analyses
- Observations of the use of the small article monitor at the RCA access points

b Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**4OA1 Performance Indicator Verification (71151)a. Inspection Scope

The inspectors reviewed data for the following mitigating system cornerstone performance indicators (PI). They used NEI 99-02, "Regulatory Assessment PI Guidance," to verify individual accuracy and completeness.

- Safety system unavailability, emergency alternating current (AC) power
- Safety system functional failures

The inspectors reviewed data and plant records from July 2002 to June 2003. The records reviewed included PI data summary reports, licensee event reports (LER), operator narrative logs, and maintenance rule records. The inspectors verified the accuracy of the number of critical hours reported, and interviewed the system engineers and operators responsible for data collection and evaluation.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

1. Annual Sample Review

a. Inspection Scope

The inspectors selected CR-2002-05455 for detailed review. This CR was associated with weekly collective exposure goals not being met. The CR and the root cause analysis were reviewed to ensure that the full extent of the issue was identified, an appropriate cause evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors also reviewed quality assurance (QA) surveillance report No. 2353 that provided the status of completion of corrective actions for the CR.

The inspectors observed that emergent maintenance activities during this time period challenged the cognizant departments in meeting their weekly collective exposure goals. Nonetheless, CRs for ALARA issues were initiated at a conservative threshold, and department management addressed the factors regarding ALARA performance in a timely manner.

b. Findings

No findings of significance were identified.

2. Routine PI&R Program Review

a. Inspection Scope

The inspectors performed a detailed review of 69 corrective action program items selected across the initiating events, mitigating systems, and barrier integrity

cornerstones to evaluate the effectiveness of Entergy's corrective action program. The inspectors assessed Entergy's threshold for problem identification, the adequacy of cause analyses and extent of condition reviews, and the timeliness of the corrective actions required. The inspectors reviewed pertinent operators' logs, WRs, engineering evaluations, surveillance test results, and self-assessments; they interviewed operators, engineers, and maintenance department personnel; and when possible, attended screening committee and review board meetings. The CRs reviewed are noted in the Attachment.

b. Findings

No findings of significance were identified.

3. Cross-references to PI&R Findings Documented Elsewhere

Section 1R12 describes a finding for ineffective corrective action to preclude failures of the RCIC pump discharge flow indicating controller.

4OA3 Event Follow-up (71153)

1. Automatic reactor scram and loss of offsite power

a. Inspection Scope

On August 14 electrical grid instability caused an automatic reactor trip and loss of the normal heat sink. The EDGs started and loaded onto their respective 4160 Vac buses due to sustained low voltage. Plant cooldown was achieved using safety relief valves and the HPCI and RCIC systems. Mitigating systems and fission product barriers functioned as designed during the event. Entergy properly classified the event in accordance with emergency action level procedures as an Unusual Event and made timely notifications to the NRC and State and county governments.

b. Findings

No findings of significance were identified.

2. (Closed) LER 50-333/02-001-01: Both trains of CS and one RHR pump inoperable due to out of tolerance pump start time relays. This LER revision provided an updated schedule for replacing the existing time delay relays. The inspector reviewed the LER revision and identified no significant findings. The event was documented in Entergy's corrective action program as CR-2002-02721.

4OA6 Meetings, Including Exit

The inspectors presented the inspection results to Entergy management on October 15. Entergy acknowledged the findings presented and that no proprietary information was involved.

ATTACHMENT: SUPPLEMENTAL INFORMATION



**SUPPLEMENTAL INFORMATION****KEY POINTS OF CONTACT**Entergy personnel

T. Sullivan, Vice President, Operations  
 B. O'Grady, General Manager, Plant Operations  
 B. Maguire, Director, Nuclear Safety  
 P. Berry, Manager, Training  
 J. Laplante, Manager, Security  
 A. Halliday, Manager, Regulatory Compliance  
 D. Johnson, Manager, Operations  
 O. Limpas, Director, Engineering  
 N. Avrakatos, Emergency Preparedness Coordinator  
 D. Ruddy, Manager, CA&A  
 K. Pushee, Manager, Radiation Protection  
 S. Bono, Manager, System Engineering  
 V. Bhardwaj, Manager, Programs and Components Engineering  
 A. Khanifar, Manager, Design Engineering  
 T. Spencer, Manager, Plant Maintenance

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**Opened and Closed

05000333/2003008-01	NCV	Inadequate corrective actions associated with the failure of RCIC pump discharge flow controller 13FIC-91. (Section 1R12)
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Closed

05000333/2002001-01	LER	Both Trains of CS and One RHR Pump Inoperable Due to Out of Tolerance Pump Start Time Delay Relays (Section 40A3.2)
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Discussed

NONE

## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather Protection**

#### Documents:

AOP-13, "High Winds, Hurricanes, and Tornadoes"  
AP-12.04, "Seasonable Weather Preparations"  
JAF-RPT-MULTI-01267, "Raw Water Systems Program Plan"  
JENG-02-0150, "Deferral of NSW Non-Outage Work"  
JENG-03-0191, "Deferral of NSW Non-Outage Work"  
DBD-067, "DBD for the Turbine Building HVAC Systems"  
Engineering Request ER-03-1522, "Replace NSW Unit Coolers and TCVs"  
JAF-CALC-HST-01540, "Evaluation of DER 94-0051" (Requirements for securing the reactor building crane)  
Drawing 11825-FS-21D, "Reactor Building Crane Runway"

### **Section 1R04: Equipment Alignment**

OP-15, "HPCI"  
OP-14, "CS System"  
OP-17, "SLC"  
OP-13C, "RHR Service Water"  
OP-22, "Diesel Generator Emergency Power"  
OP-60, "Diesel Generator Room Ventilation"  
OP-46A, "4160 V and 600 V Normal AC Power Distribution"  
DBD-046, "DBD for the Normal, Emergency and RHR Service Water Systems"  
DBD-014, "DBD for the CS System"  
DBD-093, "DBD for the EDG Systems"  
JAFF-91-0722, "Lack of Documentation to Support EDG Tornado Design Basis"

### **Section 1R07: Heat Sink Performance**

#### Procedures:

AP-07.00, "Radiation Protection Program"  
AP-07.01, "RWP Program"

#### Design Basis Documentation:

DBD-066, Section 3.1.10, "Reactor Building HVAC Systems Unit Coolers"  
DBD-067, Section 3.2, "Electrical Bays Ventilation and Cooling Systems"  
DBD-093, Section 3.4.1, "EDG Jacket Water Heat Exchangers"

#### Other Documents:

UFSAR 9.7, "Service Water Systems"  
ESW System Health Reports: 1Q2002, 2Q2002, 3Q2002, 4Q2002, 1Q2003  
QA Surveillance Report 2337, "Heat Sink Performance," dated April 11, 2003  
JPN-90-015, Response to NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment," dated February 13, 1990; updated April 18, 1991 and March 16, 1993  
JAF-RPT-MULTI-01267, "Raw Water Systems Program Plan (JAF-ACT-00-49081)," Revision 2  
ST-8Q, "Testing of the ESW System"  
TST-104, "Testing of ESW Loop A"  
FM-46B, "Flow Diagram ESW System 46 and 15"  
Visual/Eddy Current Exams of EDG Jacket Water Heat Exchangers  
AP-09.02, "Zebra Mussel Control Program"

### **Section 1R22: Surveillance Testing**

#### Calculations:

JAF-CALC-SWS-00621, "Flow Equations for ST-8Q Acceptance Criteria"  
JAF-CALC-SWS-00569, "Cooler Performance Methodology for Crescent, Electric Bay and Cable Tunnel Coolers"  
JAF-CALC-RBC-02725, "Spreadsheet Validation for ST-19C Heat Exchanger Calculations"

### **Section 2OS2: ALARA Planning and Controls**

#### Procedures:

AP-07.00, "Radiation Protection Program"  
AP-07.01, "RWP Program"  
AP-07.03, "ALARA Program"  
AP-07.05, "Exposure Monitoring and Radiological Controls for Site & RCA Access"  
AP-07.06, "High Radiation Area Control"  
RP-OPS-02.02, "RWP"  
RP-OPS-02.03, "High Radiation Area Access and Key Control"  
RP-OPS-02.04, "Personnel Radiological Hold"  
RP-OPS-03.01, "Radiological Survey Performance and Documentation"  
RP-OPS-03.03, "Radiological Posting and Labels"  
RP-OPS-08.01, "Routine Surveys and Inspections"  
RP-ALARA-01.01, "ALARA Review"  
ENN-WM-101, "On-line Work Management Process"

#### ALARA Reviews/In-Progress Reviews & Associated RWP's:

AR 03-023, "RWCU Pump & Motor Replacement/ RWP-0031"  
AR 03-037, "RWCU Pump Seals & Preventive Maintenance Review/ RWP-03-0057"  
AR 03-020, "Unit Cooler Maintenance and Repair/ RWP 03-0024"

Radiation Protection Department Records:

JRP-APL-03-002 Station Multi-Year Radiation Reduction Plan  
R-16 Dose Reduction Initiatives  
2003 ALARA Review Status Summary  
Source Term Reduction Summary  
Focused Self-Assessment Radiation Dose Control, February 2003

Other:

Reactor Water Clean-up Seal Improvement Meeting Minutes  
Operations Department ALARA Action Plan  
Maintenance Department ALARA Action Plan  
System Engineering Department ALARA Action Plan  
Chemistry Department ALARA Action Plan

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

Emergency Plan, Section 2, Revision 19  
Emergency Plan, Section 6, Revision 25  
Emergency Plan, Section 7, Revision 25  
Emergency Plan, Section 8, Revision 25  
IAP-1, "Emergency Plan Implementation Checklist," Revision 29  
EAP-1.1, "Offsite Notifications," Revision 48  
EAP-4, "Dose Assessment Calculations," Revision 32  
EAP-16.2, "Joint News Center Operation," Revision 2  
EAP-17, "Emergency Organization Staffing," Revision 106  
EAP-32, "Recovery Support Group Manager," Revisions 9 & 10  
EAP-42, "Obtaining Meteorological Data," Revision 20  
SAP-2, "Emergency Equipment Inventory," Revision 36  
SAP-7, "Monthly Surveillance Procedure for On-Call Employees," Revision 37

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

Condition Reports:

CR-2003-03705	CR-2003-03717	CR-2003-03768	CR-2002-05455
CR-2003-03232	CR-2003-00390	CR-2003-03421	CR-2003-03412
CR-2003-03403	CR-2003-03402	CR-2003-00602	CR-2003-02307
CR-2003-02071	CR-2003-01882	CR-2003-00034	CR-2003-01308
CR-2003-01105	CR-2003-00914	CR-2003-00885	CR-2003-00852
CR-2003-00782	CR-2003-00660	CR-2003-00656	CR-2003-00639
CR-2003-00296	CR-2003-00034	CR-2003-00569	CR-2003-00419
CR-2003-00280	CR-2002-01448	CR-2002-01883	CR-2002-05348
CR-2002-05350	CR-2002-05369	CR-2003-03653	CR-2003-03564
CR-2002-00721	CR-2002-00776	CR-2002-03704	CR-2002-03864

CR-2003-02195	CR-2003-02891	CR-2003-01196	CR-2003-01415
CR-2003-02439	CR-2003-02638	CR-2003-03098	CR-2003-04155
CR-2003-04156	CR-2003-04041	CR-2003-04457	CR-2003-04500
CR-2002-01031	CR-2003-00496	CR-2003-00733	CR-2003-00952
CR-2003-00033	CR-2003-02714	CR-2003-02943	CR-2003-03910
CR-2003-04550	CR-2003-03717	CR-2003-03723	CR-2003-04382
CR-2003-04441	CR-2003-04358	CR-2003-04342	CR-2003-04116
CR-2003-04914			

### LIST OF ACRONYMS

AC	alternating current
ALARA	as low as reasonably achievable
AOP	abnormal operating procedure
AP	administrative procedure
AR	ALARA review
CR	condition report
CS	core spray
DBD	design basis document
EDG	emergency diesel generator
EOP	emergency operating procedure
ESW	emergency service water
FIN	fix-it-now
HPCI	high pressure coolant injection
IST	inservice test
LER	licensee event report
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
ODCM	offsite dose calculation manual
OP	operating procedure
PI	performance indicator
QA	quality assurance
QC	quality control
RCA	radiologically controlled area
RCIC	reactor core isolation cooling
REMP	radiological environmental monitoring program
RHR	residual heat removal
RHRSW	residual heat removal service water
RWCU	reactor water cleanup
RWP	radiation work permit
RWR	reactor water recirculation
SDP	significance determination process
SGT	standby gas treatment
SLC	standby liquid control
SSC	structures, systems and components

TI	temporary instruction
TM	temporary modification
TS	technical specification
UFSAR	updated final safety analysis report
Vac	volts, alternating current
WR	work request