

May 10, 2005

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

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT - NRC TRIENNIAL FIRE  
PROTECTION INSPECTION REPORT 0500333/2005002

Dear Mr. Sullivan:

On March 31, 2005, the NRC completed a triennial fire protection team inspection at the James A. Fitzpatrick Nuclear Power Plant. The enclosed report documents the inspection findings which were discussed at an exit meeting on March 31, 2005, with Mr. K. Mulligan and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's regulations and with the conditions of your license. The purpose of the inspection was to evaluate your post-fire safe shutdown capability and fire protection program. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection no findings of significance were identified.

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Sincerely,

*/RA/*

John F. Rogge, Chief  
Electrical and Fire Protection Branch  
Division of Reactor Safety

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

Enclosure: Inspection Report No. 05000333/2005002

cc w/encl:

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M. Kansler, President, Entergy

K. Mulligan, General Manager, Plant Operations

O. Limpas, VP Engineering

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M. Colomb, Director of Oversight

S. Bono, Director, Nuclear Safety Assurance

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 50-333

License No. DPR-59

Report No. 05000333/2005002

Licensee: Entergy Nuclear Operations, Inc.

Facility: James A. Fitzpatrick Nuclear Power Plant

Location: 268 Lake Road  
Lycoming, New York

Dates: March 14-18 and 28-31, 2005

Inspectors: R. Fuhrmeister, Sr. Reactor Engineer, Division of Reactor Safety (DRS)  
J. Bobiak, Reactor Inspector, DRS  
D. Werkheiser, Reactor Inspector, DRS  
S. Lewis, Reactor Inspector, DRS

Approved by: John F. Rogge, Chief  
Electrical and Fire Protection Branch  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000333/2005002 on 03/14-18 and 28-31/05, Entergy Nuclear Operations, Inc., James A. Fitzpatrick Nuclear Power Plant. Fire Protection

The report covered a two-week triennial fire protection team inspection by regional specialist inspectors. 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. NRC-Identified Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None

## REPORT DETAILS

### Background

This report presents the results of a triennial fire protection inspection conducted in accordance with the February 18, 2005, revision of NRC Inspection Procedure (IP) 71111.05T, "Fire Protection." The objective of the inspection was to assess whether Entergy Nuclear Operations, Inc. (Entergy) has implemented an adequate fire protection program and that post-fire safe shutdown capabilities have been established and are being properly maintained at the James A. Fitzpatrick Nuclear Power Plant (Fitzpatrick or JAFNPP). The following target fire areas were selected for detailed review based on risk insights from the JAFNPP Individual Plant Examination (IPE) and Individual Plant Examination of External Events (IPEEE):

- @Fire Area CR-1
- @Fire Area RR-1
- @Fire Area RB-1E
- @Fire Area BR-2
- @Fire Area CT-2

### **1. REACTOR SAFETY**

Cornerstones: Initiating Events, Mitigating Systems

#### 1R05 Fire Protection

##### 1. Shutdown From Outside Main Control Room

###### a. Inspection Scope

The inspectors reviewed AOP-43, "Plant Shutdown from outside the Control Room," to determine what equipment was credited for post-fire safe shutdown (SSD) and what shutdown methodology was used. The inspectors also walked down the alternate shutdown panels in the field to evaluate accessibility, habitability, and access/egress path lighting. The team evaluated selected safe shutdown components and their power and control circuits to determine whether proper alternate power sources were provided for those components and to verify whether alternate shutdown control would be affected by fire-induced circuit faults. The team reviewed the electrical isolation capability of selected equipment needed for post-fire safe shutdown to ensure that such equipment could be operated locally or from the alternate shutdown panels, if needed. In addition, the team also reviewed the surveillance test procedure and test records of the five Remote Shutdown Panels to ensure that the functionality of the panel switch functions had been adequately demonstrated and to evaluate compliance with the JAFNPP licensing basis for fire protection.

###### b. Findings

No findings of significance were identified.

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## 2. Protection of Safe Shutdown Capabilities

### a. Inspection Scope

The inspectors reviewed AOP-28, "Operation During Plant Fires," the JAFNPP Fire Hazards Analysis, Safe Shutdown Analysis, and FSAR to determine the strategies and equipment intended for Safe Shutdown for the target fire areas. The team evaluated selected safe shutdown components and their power and control circuits to determine whether proper separation and fire protection were provided for those components and to determine if the design requirements satisfy Section III.G of 10CFR50 Appendix R, and other JAFNPP licensing basis documents. The target fire areas were walked down by the team to verify the field configuration and status of selected cable routes and components with respect to their documented condition.

### b. Findings

No findings of significance were identified.

## 3. Passive Fire Protection

### a. Inspection Scope

The team walked down accessible portions of the target fire areas to observe material condition and the adequacy of design of fire area boundaries, fire doors, and fire dampers. The team reviewed surveillance and functional test procedures for selected items. The team also reviewed licensee submittals and NRC safety evaluation reports (SERs) associated with fire protection features. Additionally, the team reviewed the inspection history of selected barriers.

During tours of the facility, the team observed the storage of permanent and transient combustible materials and control of ignition sources. The team also reviewed the procedure that controls hot-work activities at the site. Additionally, the team reviewed a sample of hot work permits.

### b. Findings

No findings of significance were identified.

## 4. Active Fire Protection

### a. Inspection Scope

During tours of the facility, the team observed the material condition of fire protection systems and equipment. The team reviewed the adequacy of the fire detection and suppression systems in the target fire areas. This included a walkdown of the systems and review of the type of installed detectors as shown on equipment location drawings.

The team observed portable extinguishers to determine the material condition of the manual fire fighting equipment and verify locations as specified in the pre-fire plans and fire protection program documents. Additionally, the team reviewed fire detection and suppression surveillance procedures to determine the adequacy of the component testing and to ensure that the systems would function as required.

The team inspected the fire brigade's protective ensembles, self-contained breathing apparatus (SCBA), and various fire brigade equipment to determine operational readiness for fire fighting. The team reviewed pre-fire plans for the target fire areas to determine if appropriate information was provided to fire brigade members and plant operators to identify safe shutdown equipment and instrumentation, and to facilitate suppression of a fire that could impact safe shutdown. The team reviewed fire brigade training course material to verify appropriate training was being conducted for the station fire fighting personnel. Additionally, the team reviewed selected fire drills and critiques to ensure that drills were being conducted in risk significant areas. The team reviewed the qualifications of several fire brigade leaders and members to ensure that they had met and maintained the requirements to be fire brigade leaders and members.

b. Findings

No findings of significance were identified.

5. Operational Implementation of Post-Fire Shutdown Capability

a. Inspection Scope

The team reviewed post-fire shutdown procedures, Simulator Exercise Guides and Job Performance Measures to verify procedure adequacy, that plant operators were provided appropriate training for post-fire shutdown activities, and that the required activities were feasible. The team compared the activities in post-fire shutdown procedures for the target areas to the fire protection safety evaluation reports to determine whether JAFNPP relied on any unapproved manual operator actions in lieu of protection of equipment.

The team performed a walkdown of the contingency actions specified in Attachment 11 to AOP-28 in order to verify feasibility of the actions and that the areas would be accessible following the postulated fire. The team also verified the availability of special tools and necessary safety equipment.

The team also reviewed the surveillance test procedure and test records of the five Remote Shutdown Panels to ensure that the functionality of the panel switch functions had been adequately demonstrated.



b. Findings

No findings of significance were identified.

6. Circuit Analyses

a. Inspection Scope

The team reviewed the JAFNPP Safe Shutdown Analysis and verified that, for each target fire area, a post-fire safe shutdown analysis was performed and components required for SSD were identified. The JAFNPP analysis assessed the impact on SSD from various failures and addressed each circuit individually. Cable failure modes were reviewed for the following components: (1) Loop 'B' RHR HX Bypass 10MOV-66B, (2) Head vent solenoid valves 02SOV-17 & 18, and (3) RHR inboard isolation valve 10MOV-25B.

The team reviewed cable routing for post-fire SSD components to confirm that cables subject to fire damage in the five target fire areas were identified and adequately addressed. The team also performed a walk-down of cable raceways for a sample of components required for SSD to verify that cables were routed as described in the cable routing matrices.

The team reviewed circuit breaker coordination studies to ensure equipment needed to conduct post-fire safe shutdown activities would not be impacted due to a lack of protective device coordination. The team also reviewed the JAFNPP Multiple High Impedance Fault Analysis for selected feeder buses and MCC's for components important to SSD to verify continuity of power under fire damage conditions. The team confirmed that coordination studies had addressed multiple faults due to fire.

b. Findings

No findings of significance were identified.

7. Communications

a. Inspection Scope

During the walkdown of the alternate shutdown panels and the Contingency actions specified in Attachment 11 to AOP-28, the team verified that multiple means of communication were provided for the use of operators during post-fire shutdown activities.

b. Findings

No findings of significance were identified.

## 8. Emergency Lighting

### a. Inspection Scope

The team observed the placement and coverage area of eight-hour emergency lights throughout the target fire areas to evaluate their adequacy for illuminating access and egress pathways and any equipment requiring local operation for post-fire safe shutdown. The team also reviewed preventive maintenance procedures and completed surveillance tests, to determine if adequate surveillance testing and periodic battery replacements were in place to ensure reliable operation of the emergency lights. The team observed portions of an eight-hour discharge test.

### b. Findings

No findings of significance were identified.

## 9. Cold Shutdown Repairs

### a. Inspection Scope

The team reviewed post-fire shutdown procedures, and the safety evaluation reports related to fire protection to identify cold shutdown repairs. The team chose to verify cold shutdown repair activities specified in Attachment 11 to AOP-28. The team performed an inventory of the equipment, and observed a walkthrough of the repair by plant operators to verify feasibility, and appropriate equipment and tools were available.

### b. Findings

No findings of significance were identified.

## 4. **OTHER ACTIVITIES**

### 4OA2 Identification and Resolution of Problems

#### 1. Corrective Actions for Fire Protection Deficiencies

##### a. Inspection Scope

The team reviewed selected condition reports for fire protection issues and the recent fire protection program system health report to evaluate the prioritization for resolving fire protection related deficiencies and the effectiveness of corrective actions. The team also reviewed a recent quality assurance audit and self-assessments of the fire protection program to determine if the licensee was identifying program deficiencies and implementing appropriate corrective actions.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

The team presented their preliminary inspection results to Mr. K. Mulligan and other members of the Entergy staff at an exit meeting on March 31, 2005.

No proprietary information was included in this inspection report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

K. Mulligan, General Manager of Plant Operatoins  
J. Pechacek, Manager of Design Engineering  
J. Gerety, Manager of Programs and Component Engineering  
D. Wallace, Manager of Quality Assurance  
M. Durr, Manager of System Engineering  
D. Johnson, Manager of Operations  
T. Raymond, Manager of Information Technology  
D. Koelbel, Fire Protection System Engineer  
S. Reininghouse, Training Supervisor  
R. Locy, Operations Project manager  
R. Jennings, Fire Protection Specialist  
D. Stokes, Fire Protection Engineer  
D. Spindler, Shift Manager

Constellation Generation Group, LLC

G. Cooper, Fire Safe Shutdown Engineer

NRC

J. Lubinski, Acting Deputy Director, Division of Reactor Safety  
J. Rogge, Chief, Electrical and Fire Protection Branch, Division of Reactor Safety  
L. Cline, Senior Resident Inspector  
D. Dempsey, Resident Inspector

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

NONE

Open and Closed

NONE

Closed

NONE

Discussed

NONE

**LIST OF DOCUMENTS REVIEWED**

Fire Protection Design Documents

DBD-076 Tab VI, "James A. Fitzpatrick Nuclear Power Plant Fire Protection, Tab VI," Rev. 3  
DBD-076 Tab IX, "James A. Fitzpatrick Nuclear Power Plant Fire Protection, Tab IX," Rev. 4  
JAF-RPT-FPS-01975, Rev. 1, Safe Shutdown Analysis 10 CFR50 Appendix R  
JAF-RPT-04-00478, Rev. 0, JAF Fire Hazards Analysis  
JAF-ANAL-FPS-00734, "Fire Barrier Analysis," Rev. 2  
JNRC-78-55, "Responses to NRC Staff Concerns/Staff Positions Related to Fire Protection Program," 10/27/78  
JPN-79-40, "Additional Responses to the Draft SER Relating to Fire Protection Program," 07/02/79

Calculations/Engineering Evaluation Reports

H-1-KC-ECS-0037, "Fire Detection Computer Replacement," Rev. 0  
JAF-CALC-ELEC-00640, "125VDC Electrical Distribution Coordination Analysis," Rev. 0  
JAF-CALC-ELEC-02016, "125VDC System Short-Circuit Calculation and Coordination Evaluation," Rev. 0  
JAF-ECAF-BUS-H05 through L25, "4160VAC Electrical Distr. Sys. Coordination Adequacy Forms," Rev. 0  
JAF-ECAF-L13 through L44, "600VAC Electrical Distr. Sys. Coordination Adequacy Forms," Rev. 0  
JAF-RPT-ELEC-00478, "JAF Fire Hazards Analysis," Rev. 0  
JAF-RPT-ELEC-00527, "Evaluation of the 125VDC System Protective Device Coordination," Rev. 1  
JAF-RPT-FPS-01975, "Safe Shutdown Analysis 10CFR50 Appendix R," Rev. 1  
P738, Calc No. 184, "JAF NPP Multiple High Impedance Fault Analysis," Rev. 1, July 1999

Procedures

AOP-28, Rev. 14, "Operation During Plant Fires"  
AOP-43, Rev. 30, "Plant Shutdown from Outside the Control Room"  
AOP-51, Rev. 4, Unexpected Fire Pump Start  
AOP-55, Rev. 9, "Alternate Shutdown Cooling Due to Plant Fires"  
ENN-DC-127, Rev. 1, "Control of Hot Work and Ignition Sources"  
FPP-1.12, Rev. 5, "Fire Protection Impairments"  
MST-076.05, Rev. 25, "Exide/Lightguard F-100 Emergency Light Surveillance Test"  
MST-076.06, Rev. 11, "Holophane Emergency Light Surveillance Test"  
MST-076.11, Rev. 17, "Fire Barrier Penetration Functional Integrity Surveillance Test"  
ST-16J5, Rev. 11, "Reactor Building Emergency Lighting Test"

ST-76AD, Rev. 7, "East Diesel Fire Pump 76P-4 Performance Test"  
ISP-76-1, Rev. 9, "Electric and Diesel Fire Pump Start Pressure Switch Functional Test"  
ST-76U, Rev. 9, "Fire System Flow Test"  
ST-76U, Rev. 7, "Fire System Flow Test"  
TST-13, Rev. 0, "High Pressure Water Fire Protection System Hydraulic Gradient Analysis"

Completed Tests/Surveillances

ST-43A, "Remote Shutdown Panel 25RSP Component Operation and Isolation Verification,"  
Rev. 8; dated September 16, 2004  
ST-43B, "Remote Shutdown Panel 25RSP-1 Component Operation and Isolation Verification,"  
Rev. 6; dated September 06, 2004  
ST-43C, "Remote Shutdown Panel 25RSP-2 Component Operation and Isolation Verification,"  
Rev. 8; dated September 15, 2004  
ST-43D, "Remote Shutdown Panel 25RSP-3 Component Operation and Isolation Verification,"  
Rev. 11; dated September 18, 2004  
ST-43D, "Remote Shutdown Panel 25RSP-3 Component Operation and Isolation Verification,"  
Rev. 11; dated September 19, 2004  
ST-43E, "Panel 66HV-3B Remote Shutdown Panel Component Operation and Isolation  
Verification," Rev. 3; dated September 12, 2004  
ST-43F, "Remote Shutdown Panel 25RSP-4 Component Operation and Isolation Verification,"  
Rev. 2; dated October 20, 2004  
ST-43G, "Remote Shutdown Panel 25RSP-5 Component Operation and Isolation Verification,"  
Rev. 4; dated October 15, 2004  
ST-43H, "Circuit Breaker 10614 Remote Shutdown Panel Operation and Isolation Verification,"  
Rev. 7; dated October 06, 2004  
MST-076.09, "Fire Hose Inspection and Hydrostatic Test," Rev. 9, Completed 11/05/02  
SAP-2, "Emergency Equipment Inventory," Rev. 39, Completed 01/14/05  
ST-76F, "Fire Hose Station Gasket Inspection and Hose Rerack Test," Rev. 5, Completed  
09/13/04  
ST-76J5, "East Cable Tunnel Smoke Detector and Sprinkler Test," Rev. 15, Completed  
08/25/04  
ST-76J21, "Smoke and Heat Detector Functional Tests - Relay Room," Rev. 24, Completed  
11/12/03  
ST-76J32, "Smoke Detector Functional Test - East Crescent," Rev. 9, Completed 03/04/04  
ST-76K, "Fire Header Integrity and Nozzle Inspection," Rev. 7, Completed 07/20/03  
ST-76Z, "Fire Damper Operability Test," Rev. 15, Completed 02/14/05  
ST-99C, "Safe Shutdown Equipment Inventory and Panel Operability Verification," Rev. 23,  
Completed 09/12/04  
TMP-76.1, "Fire Penetration Seal Baseline Inspection," Completed 01/92

Quality Assurance (QA) Audits and System Health Reports

A03-05J, "Annual, Biennial, and Triennial Fire Protection Program Audit," July 15, 2003  
LO-JAFLO-2003-00192, "Fire Protection Program Focused Self-Assessment," 12/11/03  
LO-JAFLO-2003-00088, "Snapshot Assessment on Fire Protection System Testing and  
Maintenance," 08/13/04

LO-JAFLO-2004-00099CA01, "In-Station Fire Brigade Drill Performance Focused Self-Assessment"

Snapshot Assessment of AOP-43 (Plant Shutdown From Outside the Control Room), 02/05

Snapshot Assessment on Fire Protection/Safe Shutdown Engineering Activities, 07/30/03

Snapshot Assessment on Fire Protection System Impairments

### Drawings

7.87-15, "Remote and Auxiliary Shutdown Panels," Rev. A

7.87-16, "Remote Shutdown Panel 25 RSP," Rev. C

7.87-17, "Remote Shutdown Panel 25 RSP," Rev. B

7.87-20, "Auxiliary Shutdown Panel 25ASP-1," Rev. E

7.87-27, "Name Plate List for Remote & Shutdown Panels," Rev. F

7.87-27, "Name Plate List for Remote Shutdown Panels 25RSP, 25RSP-1, 25RSP-2, 25RSP-3," Rev. A

83-37, "Elem. Diag. Auto Depressurization Sys.," Rev. T

83-38, "Elem. Diag. Auto Depressurization Sys.," Rev. Q

83-39, "Elem. Diag. Auto Depressurization Sys.," Sh. 1, 2; Rev. M

ESK-3B, "Control Switch Contact Diagrams," Sh. 2; Rev. 12

ESK-5BS, "D.C. Elem. Diag. 4160V Ckt Emergency Bus 10500 UV Operation," Rev. 23

ESK-5BH, "D.C. Elem. Diag. 4160V Ckt RHR Serv. Water Pump 10P-1B," Rev. 19

ESK-5BU, "D.C. Elem. Diag. 4160V Ckt RHR Pump 10P-3A," Rev. 24

ESK-5BX, "D.C. Elem. Diag. 4160V Ckt RHR Serv. Water Pump 10P-3D," Rev. 25

ESK-6H, "D.C. Elem. Diag. 600V Supply ACB's Buses 11600 & 12600," Rev. 13

ESK-6AE, "Elem. Diag.-600V SWGR CKTS Sh. 5 RX BLDG. Closed Loop Cooling PMP C," Rev. 12

ESK-6AL, "Elem. Diag.-600V SWGR CKTS Emergency Service Water Pmp B, 46P-2B," Rev. 7

ESK-6MD, "Elem. Diag.-600V Ckts MOV HX 'A' & 'B' Vent VV's MOV-166A & B," Rev. 13

ESK-6MF, "Elem. Diag.-600V Ckts MOV HX Shell Side Outlet VV's," Rev. 12

ESK-6MG, "Elem. Diag.-600V Ckts MOV RHR 10P-3A & C Suction VV's 10MOV-13A & C," Rev. 10

ESK-6MH, "Elem. Diag.-600V Ckts MOV RHR PP's-3B & D Suction VV's 10MOV-13B & D," Rev. 12

ESK-6MM, "Elem. Diag.-600V Ckts MOV Service Water Crosstie VV's 10MOV-148A&B," Rev. 9

ESK-6MP, "Elem. Diag. 600V Ckts MOV RHR INBD VV's 10MOV-25A & B," Rev. 22

ESK-6MQ, "Elem. Diag. 600V Ckts MOV and Containment Spray Outboard VV's 10MOV-26A Red & 10MOV-26B Blue," Rev. 12

ESK-6MR, "Elem. Diag. 600V Ckts MOV RHR OTBD VV's 10MOV-27A & B," Rev. 15

ESK-6MS, "Elem. Diag. 600V Ckts MOV and Containment Spray Outboard VV's 10MOV-31A Red & 10MOV-31B Blue," Rev. 10

ESK-6MT, "Elem. Diag. 600V Ckts MOV Containment Spray Outboard VV's 10MOV-34A&B," Rev. 10

ESK-6MW, "Elem. Diag.-600V Ckts MOV Torus Cooling Isol Valves 10MOV-39A & B," Rev. 17

ESK-6MY, "Elem. Diag.-600V Ckts MOV HX Shell Side Bypass VV's 10MOV-66A & B," Rev. 15

ESK-6MZ, "Elem. Diag. 600V Ckts MOV Containment Coolant HX 10-2A & 2B Disch. VV's 10MOV-89A & B," Rev. 16

ESK-6MAE, "Elem. Diag. 600V Ckts-MOV Steam Pressure Stop Valves," Rev. 12

ESK-6MAV, "Elem. Diag. 600V Ckts-MOV HPCI Steam Supply Valve 23MOV-15," Rev. 13  
 ESK-6MAZ, "Elem. Diag. 600V Ckts-MOV RCIC Sys.-Inbrd Stm Supply Isol 13MOV-15," Rev. 9  
 ESK-6MMA, "Elem. Diag. 600V Ckts-MOV Srv Water Crosstie VV's 10MOV-149A&B," Rev. 9  
 ESK-7B, "Elem. Diag.-Pri. Cont. Isol. Sys.-SOV Sh.2 Main Steam Line Valves (OTBD)," Rev. 14  
 ESK-7F, "Elem. Diag.-Pri. Cont. Isol. Sys.-SOV Reactor Vent Valves," Rev. 8  
 ESK-10BY, "Elem. Diag. Annunciator Sheet 19," Rev. 5  
 ESK-10HK, "Window Arrangement and Engraving Legends for Annuc. Panel 09-04-1," Rev. 2  
 ESK-11AK, "Elem. Diag. 125VDC Ckts-MOV HPCI System 23MOV-14 & 16," Rev. 18  
 ESK-11AQ, "Elem. Diag. 125VDC Ckts-MOV RCIC Sys-Outbrd Stm Supp Iso & Stm to Turb  
 MOV's," Rev. 11  
 ESK-11AR, "Elem. Diag. 125VDC Ckts-MOV RCIC Sys-Pump Suct. Condensate Stor. Tank  
 & PDisch. MOV's," Rev. 11  
 SK-11AS, "Elem. Diag. 125VDC Ckts-MOV RCIC Sys-PP Disc & Test Bypass to Cond Stor Tk  
 MOV's," Rev. 14  
 ESK-11AT, "Elem. Diag. 125VDC Ckts-MOV RCIC Sys-PP Suct from Suppression Chamber  
 MOV's," Rev. 13  
 FE-1A, "Main One Line Diagram Generator & Main Transformer," Rev. 18  
 FE-1B, "Main One Line Diagram Sh.2 Station Service Transformers," Rev. 11  
 FE-1C, "Main One Line Diagram Sh.3 345kV Switchyard," Rev. 13  
 FE-1D, "Main One Line Diagram Sh.4 115kV Switchyard," Rev. 9  
 FE-1L, "600V One-Line Diagram Sh.2 SWGR 71L15 & 71L16, 71MCC-153 & 71MCC-163,"  
 Rev. 32  
 FE-1N, "600V One-Line Diagram Sh.4 SWGR's 71L25 & 71L26, 71MCC-251 & 71MCC-261,"  
 Rev. 23  
 FE-1P, "600V One-Line Diag. Sh.5 SWGR's 71L33 & 71L34, 71MCC-333, 343," Rev. 34  
 FE-1Q, "600V One-Line Diag. Sh.6 SWGR's 71L43 & 71L44, 71MCC-433, 443 and 480V  
 71MCC-436," Rev. 29  
 FE-1R, "600V One-Line Diagram Sh.7 71MCC-131, 141, 252, & 262," Rev. 27  
 FE-1S, "600V One-Line Diagram Sh.8 71MCC-151, 152, 161, & 162," Rev. 40  
 FE-1T, "600V One-Line Diagram Sh.9 71MCC-231, 241," Rev. 28  
 FE-1U, "600V One-Line Diagram Sh.10 71MCC-331, 341," Rev. 27  
 FE-1V, "600V One-Line Diagram Sh.11 71MCC-434, 444," Rev. 21  
 FE-1W, "600V One-Line Diagram Sh.12 71MCC-334, 344, 432, & 422," Rev. 27  
 FE-1X, "600V One-Line Diagram Sh.13 71MCC-431 & 71MCC-441," Rev. 11  
 FE-1Y, "600V One-Line Diagram Sh.14 71MCC-332, 342, 155, & 105," Rev. 34  
 FE-1AM, "125VDC One-Line Diagram," Sh. 5; Rev. 9  
 FE-1AN, "125VDC One-Line Diagram," Sh. 6; Rev. 18  
 FE-1AP, "Power Source 120VAC System," Rev. 7  
 FE-1AS, "120VAC One-Line Diagram Emerg Bus A2 & B2 Dist Pnl's 71ACA2 & 71ACB2,"  
 Rev. 23  
 FE-1AW, "120VAC One-Line Diagram Normal Control & Inst Bus D6, A5, B5 (Power) Dist Pnl's  
 71ACB5, 71ACA5, 71TBA, 71EBAC1 & 71SWAC1," Rev. 22  
 FE-1AX, "125VDC One-Line Diagram," Sh. 7; Rev. 20  
 FE-1BH, "600V One-Line Diagram Sh.17 71MCC-156, 166," Rev. 11  
 FM-20A, "Flow Diagram Residual Heat Removal System 10," Rev. 70  
 FM-20B, "Flow Diagram Residual Heat Removal System 10," Rev. 62  
 FM-22A, "Flow Diagram Reactor Core Isolation Cooling System 13," Rev. 52



FM-23A, "Flow Diagram Core Spray System 14," Rev. 49  
FM-25A, "Flow Diagram High Pressure Coolant Injection System 23," Rev. 68  
FM-29A, "Flow Diagram Main Steam System 29," Rev. 53  
FM-46B, "Flow Diagram Emergency Service Water System 46 & 15," Rev. 46  
FPSSK-1, "Fire Area/Zone Arrangement Plan Below EL 272' 0," Rev. 1  
FPSSK-2, "Fire Area/Zone Arrangement Plan EL 272' 0," Rev. 1  
FPSSK-3, "Fire Area/Zone Arrangement Plan EL 300' 0," Rev. 1  
FPSSK-4, "Fire Area/Zone Arrangement Plan EL 286', 326' 9," 344' 6" and EL 369' 6," Rev. 1  
FPSSK-5, "Fire Area/Zone Arrangement Roof Plan, Rev. 1  
FPSSK-6, "Fire Area/Zone Arrangement Sections, Rev. 1  
FPSSK-7, "Fire Area/Zone Arrangement Sections, Rev. 1  
FA-6A, "Door Schedule," Sheet 1, Rev. 21  
FB-56A, "Flow Diagram CO2 & Foam Fire Extinguishing System," Rev. 11  
FB-65A, "Reactor Building Sprinkler System for Appendix 'R'," Rev. 5  
MSK-1221, "Relay Room Low Pressure CO2 Fire Extinguishing System," Rev. 5  
SK-11AAM, Rev. 5, DC Elementary Diagram ADS Relief Valve 02ADS-RV-71 SOV-71A2

#### Pre-Fire Plans

PFP-PWR01, Rev. 03, East Cable Tunnel/Elev. 258'  
PFP-PWR04, Rev. 02, Battery Room Complex/Elev. 272', 282'  
PFP-PWR12, Rev. 02, Relay Room/Elev. 286'  
PFP-PWR13, Rev. 03, Main Control Room & Control Room HVAC Equipment Rooms/  
Elev. 300'  
PFP-PWR14, Rev. 02, Crescent Area-East/ Elev. 227', 242'

#### Fire Brigade Training

JAF-FP-FW-2 , Rev. 24, "Fire Watch and Worker Training"  
TP-4.02 , Rev. 10, "Fire and Rescue Training"  
Drill Package and Critiques From 01/10/05 Drill, EPIC Room Fire  
Drill Package and Critiques From 01/20/05 Drill, Cable Spreading Room Fire  
Fire Brigade Qualification List, 2005  
FBD-2-102, Rev. 0, FZ CT-2  
FBD-3-101, Rev. 01, FZ BR-2 / BR-5  
FBD-7-105, Rev. 0, FZ CR-1  
FBD-17-101, Rev. 02, FZ RB-1E  
FBD-1D-101, Rev. 01, FZ CT-4

#### Operator Safe Shutdown Training

NPO-CY-AOP, Rev. 2, Abnormal Operating Procedure Review  
LP-AOP, Rev. 3, Abnormal Operating procedures  
SEG 70930-0, AOP-28 Fire in MCC 162/143  
SEG 51475-5, AOP-55 Alternate Shutdown Cooling Due to Fire  
SEG 70590-2, Security Threat - Fire in South EDG Complex/Unisolable Steam Leak in Reactor Building

SEG 71775-1, Flow Unit "D" Failure, Loss of "B" Condensate Booster Pump (AOP-42), Rod Drift (AOP-27), Cable Spreading Room Fire (AOP-28&AOP-43)  
JPM 20004205C, Rev. 5, Plant Shutdown from Outside the Control Room - RBAO Actions  
JPM 20004205E, Rev. 3, Plant Shutdown from Outside the Control Room - Subsequent Actions to Preclude Loss of Nitrogen to the SRVs  
JPM 20004205BF, Rev. 4, Plant Shutdown from Outside the Control Room - SNO Actions - EDG D Inoperable

Hot Work and Ignition Source Permits

Hot Work Permit 03/21/05, "Soldering in Central Planning Kitchen Area"  
Hot Work Permit 03/29/05, "Repair Pipe Support Over HCU Bank"

Transient Combustible Evaluations

TCE-04-012  
TCE-04-015  
TCE-04-019  
TCE-04-020  
TCE-04-021  
TCE-04-023  
TCE-04-024  
TCE-04-025

Miscellaneous Documents

Cable List for Raceway Section 1TC182R & 1TX145B, dated March 30, 2005  
Cable Report for Circuit 1H0EBBH001, March 16, 2005  
Cable Report for Raceway Section 1TC182R, dated March 30, 2005  
Cable Report for Raceway Section 1TX145B, dated March 30, 2005  
Cable Route Report for 02SOV-17 & 18, dated March 16, 2005  
Cable Route Report for 10FI-133, dated March 17, 2005  
Cable Route Report for 10MOV-12A & B, dated March 17, 2005  
Cable Route Report for 10MOV-13A & B, dated March 30, 2005  
Cable Route Report for 10MOV-25A & B, dated March 17, 2005  
Cable Route Report for 10MOV-26B, dated March 16, 2005  
Cable Route Report for 10MOV-27A & B, dated March 17, 2005  
Cable Route Report for 10MOV-31B, dated March 16, 2005  
Cable Route Report for 10MOV-34A & B, 39A & B, 66A & B, 70A & B, dated March 17, 2005  
Cable Route Report for 10P-3A & 10P-3D, dated March 17, 2005  
Cable Route Report for 13MOV-15, 16, 18, 20, 21, 39, 131, dated March 17, 2005  
Cable Route Report for 23MOV-15, 16, dated March 16, 2005  
Cable Route Report for 46P-2B, dated March 16, 2005  
Cable Route Report for 71L16, dated March 17, 2005  
Fire Protection Appendix 'R' Modification Tally and Status, dated March 30, 2005  
Plant Status Sheets for JAFNPP, dated March 15-18, 2004  
Plant Status Sheets for JAFNPP, dated March 28-31, 2004

Fire Protection Impairment Log, 2005  
 Hydrogen Tank Farm Fire Information Binder, 01/14/99, Ron Jennings  
 Maintenance Rule Basis Document for Fire Protection System, Rev. 5  
 TRM Section 3.7  
 System Health Report, Fire Protection, Fourth Quarter 2004  
 Work History of System 76 Emergency Battery Lights, 03/09/05

### Condition Reports

CR-JAF-2005-01223	CR-JAF-2004-05141	CR-JAF-2004-05287
CR-JAF-2005-00036	CR-JAF-2005-00236	CR-JAF-2005-00237
CR-JAF-2004-03433	CR-JAF-2004-00209	CR-JAF-2004-00905
CR-JAF-2004-00966	CR-JAF-2004-00966	CR-JAF-2004-00239
CR-JAF-2004-03536	CR-JAF-2004-01200	CR-JAF-2004-01417
CR-JAF-2004-01710	CR-JAF-2004-01715	CR-JAF-2004-03172
CR-JAF-2004-03258	CR-JAF-2004-03568	CR-JAF-2004-03672
CR-JAF-2004-03775	CR-JAF-2004-05440	CR-JAF-2005-01231
CR-JAF-2004-03385	CR-JAF-2004-04610	CR-JAF-2004-03687
CR-JAF-2004-02010	CR-JAF-2004-03207	CR-JAF-2004-01984
CR-JAF-2004-04868	CR-JAF-2004-04612	CR-JAF-2005-00237
CR-JAF-2004-05287	CR-JAF-2004-03461	CR-JAF-2004-03690
CR-JAF-2005-00487	CR-JAF-2005-00189	LO-OEN-2005-00058
LO-OEN-2005-00056	CR-JAF-2004-03648	

### Work Orders

RWP 05-009 Task 44, Plant Observations, dated March 15, 2005  
 WO-JAF-04-20323, Reactor Building Fire Protection Post  
 WO-JAF-04-29993, Fire Protection Yard Loop Post Indic.  
 WO-JAF-05-13035, Electric Fire Pump P-2 Test Line Isol.

### **LIST OF ACRONYMS USED**

CFR	Code of Federal Regulations
CO <sub>2</sub>	Carbon Dioxide
CR	Condition Report
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
FA	Fire Area
FHA	Fire Hazards Analysis
FSAR	Final Safety Analysis Report
FZ	Fire Zone
IP	Inspection Procedure
IPE	Individual Plant Examination
IPEEE	Individual Plant Examination of External Events
JAFNPP	James A. Fitzpatrick Nuclear Power Plant

NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
P&ID	Piping and Instrumentation Drawing
SCBA	Self-Contained Breathing Apparatus
SER	Safety Evaluation Report
SSD	Safe Shutdown
TRM	Technical Requirements Manual