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NUCLEAR REGULATORY COMMISSION

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July 10, 2007

NOTE TO: File

FROM: Ngoc (Tommy) B. Le, Senior Project Manager  
License Renewal Section B  
Division of License Renewal  
Office of Nuclear Reactor Regulation

A handwritten signature in black ink, appearing to read "Ngoc B. Le", written over the typed name.

SUBJECT: DOCKETING OF DOCUMENT RECEIVED FROM THE APPLICANT  
PERTAINING TO LICENSE RENEWAL APPLICATION OF THE JAMES A.  
FITZPATRICK NUCLEAR POWER PLANT. (TAC MD2666)

This Note to File, makes the following enclosed Report publicly available. This Report was submitted to the staff for information:

- "Fire Protection Surveillance Frequency Engineering Evaluation, Evaluation No. JAF-RPT-FPS-02708, Rev. 0, dated 1/5/1998"

Docket No. 50-333

Enclosure: As stated

cc w/o encl: See next page

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**JAMES A. FITZPATRICK  
NUCLEAR POWER PLANT**

**NEW YORK POWER AUTHORITY**

**FIRE PROTECTION SURVEILLANCE  
FREQUENCY ENGINEERING EVALUATION  
EVALUATION NO. JAF-RPT-FPS-02708  
Rev. 0**

Prepared By:

*Thomas Baileys*  
Thomas Baileys, IBEX Engineering

Date: 12-17-97

Reviewed By:

*R. M. Mitchell for P. J. Nicholson*  
Patrick Nicholson, Duke Engineering

Date: 12-19-97

Approved By:

*R. M. Mitchell*  
Robert Mitchell, Duke Engineering

<b>NEW YORK POWER AUTHORITY</b>	
Date: <u>12-17-97</u>	
DOCUMENT REVIEW STATUS	
STATUS NO:	
1	<input checked="" type="checkbox"/> ACCEPTED
2	<input type="checkbox"/> ACCEPTED AS NOTED RESUBMITTAL NOT REQUIRED
3	<input type="checkbox"/> ACCEPTED AS NOTED RESUBMITTAL REQUIRED
4	<input type="checkbox"/> NOT ACCEPTED
Permission to proceed does not constitute acceptance or approval of design details, calculations, analysis, test methods or materials developed or selected by the supplier and does not relieve supplier from full compliance with contractual negotiations.	
REVIEWED BY: <i>JAF</i>	TITLE: <i>FP EER</i>
DATE: <u>1/5/98</u>	

**A. PURPOSE/SCOPE**

The purpose of this engineering evaluation is to document the review of the fire protection surveillance procedures that was performed to extend the frequencies of the surveillances based on past performance data and other pertinent factors. This project was initiated to extend the concepts for reliability-centered maintenance presented in NUREG/CR-5695 (Reference B.6) and offered by Nuclear Mutual Limited (NML). A selected set of plant procedures was reviewed to determine if there were available surveillance frequency extensions that could be adopted, based primarily on past performance of the equipment, without affecting the reliability or availability of the equipment. Quantitative performance goals are not provided in the NUREG or in the NML guidance. The decision to extend surveillance frequencies and by what amounts was a subjective one based on the preponderance of the past performance data and experienced engineering judgement. A synopsis of each of the procedure reviews is provided. The synopsis identifies the basis (requirement) for performance of the procedure, discusses the issues and performance data reviewed to determine the appropriate frequency for performance of the surveillance and provides a recommendation to change the frequency, when appropriate. When procedure changes are recommended, it is to be understood that the procedure change must include a mechanism to review future failures and assess the need to increase the surveillance frequencies based on adverse trends.

The procedures selected for review were limited to those that affect fire protection features. Some fire protection surveillance and inspection procedures were not reviewed since they had recently been extended or they were newly created procedures that do not have sufficient performance history to support frequency extensions.

**B. REFERENCES**

- B.1 ST-76 Procedures (Specific procedures and revisions reviewed are identified on the procedure synopsis pages)
- B.2 National Fire Protection Association (NFPA) - National Fire Codes (Specific Standards and editions are identified on the procedure synopsis pages)
- B.3 ANI (American Nuclear Insurers) Fire/All-Risk Guidelines
- B.4 National Fire Protection Association - Fire Protection Handbook, Seventeenth Edition
- B.5 Society of Fire Protection Engineers - Fire Protection Engineering Handbook, First Edition
- B.6 NUREG/CR-5695, A Process for Risk-Focused Maintenance
- B.7 NML Inspection and Testing Guidelines
- B.8 WNP-2 Fire Protection CNSRB Action Item Response 96-01/02

**C. BACKGROUND**

This evaluation documents the review of the plant specific performance history of the fire protection equipment via the surveillance procedures. It was initiated to identify opportunities to extend the frequency of fire protection surveillances based on the proven performance of the equipment and considering the context of their installation in a nuclear power generating facility. The nuclear generating industry has been considering reliability centered maintenance with regard to equipment other than the fire protection systems. This evaluation provides a link between surveillance inspection and testing and plant specific performance of the fire protection equipment.

A similar project was conducted at the Davis-Besse Nuclear Generating facility and at the Washington Nuclear Plant No. 2 facility and both facilities have received Nuclear Regulatory Commission regional fire protection inspections. At both facilities, the NRC regional inspection found the surveillance reviews and subsequent frequency reductions acceptable.

**D. ASSUMPTIONS**

It was assumed, for the purposes of this evaluation, that the "operating cycle" is a two year cycle and where recommendations are made to perform surveillances once per operating cycle it is intended that this can be once every two years plus the standard 25% margin allowed by the existing surveillance and inspection administrative program.

**E. METHODOLOGY**

The primary focus of the project was the retrieval, review and evaluation of past performance data for the fire protection equipment subject to routine testing. Past performance data was retrieved randomly from the available test results on file utilizing the following criteria based on recommendations by NML and on prior experience performing similar projects for other facilities:

Frequency	# of Most Recent Tests	# of Tests Selected from Cycle Preceding Most Recent	# of Tests Selected from Next Previous Cycle	# of Tests Selected from Next Previous Cycle
Weekly <sup>1</sup>	52	10	10	10
Monthly <sup>2</sup>	36	4	4	4
Bi-monthly <sup>2</sup>	24	3	3	-
Quarterly <sup>2</sup>	16	2	2	-
Semi-Annual <sup>2</sup>	8	1	1	-
Annual <sup>2</sup>	6	-	-	-
3 Year <sup>3</sup>	3	-	-	-

Notes to Table:

1. # of records reviewed cover a period of 4 years
2. # of records reviewed cover a period of 6 years
3. # of records reviewed cover a period of 9 years

The data was reviewed for apparent failures of the surveillance testing and any apparent failures were further researched to determine the cause(s) of the failures and subsequent corrective action(s). This analysis of failures was conducted to determine if the procedural "failures" were of a nature that would have affected the ability of the equipment to perform its design function. Utilizing this approach, apparent failures were eliminated from consideration in evaluating equipment performance history if the "failures" were not indicative of equipment operational impairments.

As an additional check, the DER database was reviewed to determine if there were any fire protection equipment failures identified via the DER process that did not filter out of the surveillance and inspection procedure performance review. A total of 41 DER's were identified that required further review to determine if failures were involved which would impact the evaluations of the testing performance reviews. Of these, twelve DER's were identified for an even more in-depth review of the circumstances of the reported equipment failures. None of the failures reported via the DER process were determined to impact the evaluations of past performance.

The component work history was reviewed for a randomly selected set of components including FCV's, Push Button Stations, Control Valves, PIV's, Misc. Standpipe Valves, Smoke Detectors, Heat Detectors, CO2 Hose Stations, CO2 Panels, CO2 Release Stations, Water System Releases, Water Systems Control Panels, Fire Detection Signaling, Hose Station Isolation Valves, Fire Hydrants, CO2 System Valves, CO2 Releases and Water System Release Solenoids. This sample included approximately 105 components. No failures of any of the components were found which were discovered outside of the surveillance inspection and testing program.

These two additional reviews were conducted as a result of comments received on the draft engineering evaluation. They were not included in the original scope because fire protection components typically must be "operated" or challenged for a failure to be discovered. This challenge usually comes from a test or inspection and occasionally is due to an actual fire event, in which case a close examination of the failure and its cause would be conducted and appropriate action taken. Similar reviews were conducted by the Washington Public Power Supply System at WNP-2 as a result of comments by the Corporate Nuclear Safety Review Board (Reference B.8) and the results were similar to those discovered at JAF. That is, equipment performance history is adequately captured by a review of the surveillance inspection and testing data and the maintenance histories and conditions adverse to quality reports (DER's at JAF) do not contain significant additional data regarding fire protection equipment failures.

The inspection and testing frequencies were then reviewed, considering equipment past performance history, and revised test and inspection frequencies were selected. Frequency extensions of approximately double the frequencies specified in NFPA 25, were the initial goal based on information promulgated by Nuclear Mutual Limited which indicated their willingness to accept such frequency extensions provided they were based on or derived from plant specific performance reviews. Additionally, subjective factors were considered when extending frequencies utilizing engineering judgement. These factors include equipment function and significance, test value

(contribution to availability), other mitigating programs (nuclear security, work controls), national standards and industry practice, and regulatory risk. The resulting recommendations for test and inspection frequencies are thus based on a weighted combination of past performance (~75%) and engineering judgement (~25%).

**F. CONCLUSION**

The conclusions of the review of each of the procedures is contained in the procedure synopses that follow.

A basic premise of performance based inspection and testing is that the resulting procedures include a mechanism for recovery of extended frequencies if/when equipment performance begins to deteriorate. This is to be accomplished by including a requirement in each of the testing procedures for the responsible fire protection authority (system engineer, fire engineer, etc.) to review and evaluate any reported failures against the conclusions of this engineering evaluation and take any steps that are deemed necessary to increase the frequency of the testing when the basis for extending it has been violated.

A summary table identifying the procedure, the initial frequency and the new frequency justified by this evaluation follows:

PROCEDURE NUMBER	TITLE	CURRENT FREQUENCY (Days)	RECOMM. FREQU. (Days)
ST-76A	Fire Protection System Weekly Checks	7	30
ST-76AD	East Diesel Fire Pump 76-P4 Performance Test	365	730
ST-76AC	East Diesel Fire Pump 76P-4 Operational Check	7	7
ST-76AG	Fire Protection Battery Room Corridor Main Drain Test	90	730
ST-76B	Electric Fire Pump 76P-2 Operational Check	7	30
ST-76C	West Diesel Fire Pump 76P-1 Operation Check	7	30
ST-76D	High Pressure Water and Cardox Fire Protection System Valve Position Check	30	90
ST-76E	Monthly Fire Hose Station Inspections	30	90
ST-76G	High Pressure Water Fire Protection System Flush	180	Delete
ST-76H	Valve Operational Test	365	365
ST-76I	Monthly Portable Fire Extinguisher Inspection Procedure	30	30

PROCEDURE NUMBER	TITLE	CURRENT FREQUENCY (Days)	RECOMM. FREQU. (Days)
ST-76J1	Heat Detector Functional Test - EDG Building Zone 1 (A and C)	366	730
ST-76J2	Heat Detector Functional Test - EDG Building Zone 2 (B and D)	366	730
ST-76J3	Ultra Violet Flame and Heat Detector Functional Tests - Recirculation System MG Room	180	730
ST-76J4	West Cable Tunnel Smoke Detector and Sprinkler Test	366	730
ST-76J5	East Cable Tunnel Smoke Detector and Sprinkler Test	365	730
ST-76J10	Heat Detector Functional Tests - HPCI Pump Area	365	730
ST-76J11	Heat Detector Functional Tests - RCIC Pump Area	365	730
ST-76J12	Heat Detector Functional Test - SGT Filter A	366	730
ST-76J13	Heat Detector Functional Test - SGT Filter B	366	730
ST-76J14	Smoke and Heat Detector Functional Tests - North Cable Tunnel	366	730
ST-76J15	Smoke and Heat Detector Functional Tests - South Cable Tunnel	366	730
ST-76J16	Smoke and Heat Detector Functional Tests - Cable Spreading Room	366	730
ST-76J17	Smoke and Heat Detector Functional Tests - West Electric Bay	366	730
ST-76J18	Smoke and Heat Detector Functional Test - East Electric Bay	366	730
ST-76J19	Smoke and Heat Detector Functional Tests - South Emergency Switchgear Room	366	730
ST-76J20	Smoke and Heat Detector Functional Tests - North Emergency Switchgear Room	366	730
ST-76J21	Smoke and Heat Detector Functional Tests - Relay Room	366	730

32/8

PROCEDURE NUMBER	TITLE	CURRENT FREQUENCY (Days)	RECOMM. FREQU. (Days)
ST-76J22	Smoke Detector Functional Test - Diesel Fire Pump Room and Radwaste Sample Sink Area	366	730
ST-76J23	West Diesel Fire Pump 76P-1 Performance Test	365	730
ST-76J24	Electric Fire Pump 76P-2 Performance Test	365	365
ST-76J25	Smoke Detector Functional Test - RX Building 326' - South West	365	730
ST-76J26	Smoke Detector Functional test - RX Building 300' - North	365	730
ST-76J27	Smoke Detector Functional Test - RX Building 326' - North	366	730
ST-76J28	Smoke Detector Functional Test - RX Building 300" - South	365	730
ST-76J29	Smoke Detector Functional Test - RX Building 272' - South	366	730
ST-76J30	Smoke Detector Functional Test - RX Building 272' - East	365	730
ST-76J31	Smoke Detector Functional Test - RX Building 272' - West	365	730
ST-76J32	Smoke Detector Functional Test - East Crescent	366	730
ST-76J33	Smoke Detector Functional Test - West Crescent	365	730
ST-76J34	Smoke Detector Functional Test - RX Building 344' - Southwest	366	730
ST-76J35	Smoke Detector Functional Test - RX Building 344' - North	366	730
ST-76J36	Smoke Detector Functional Test - LPCI Battery Rooms	366	730
ST-76J40	Smoke Detector Functional Test - Station Battery Rooms	366	730
ST-76J41	Smoke Detector Functional Test - Safety Pump Rooms	366	730

PROCEDURE NUMBER	TITLE	CURRENT FREQUENCY (Days)	RECOMM. FREQU. (Days)
ST-76J42	Smoke Detector Functional Test - Control Room Ventilation Rooms	366	730
ST-76J44	Smoke Detector Functional Test - Control Room Vent Exhaust Ducts	366	730
ST-76J45	Heat Detector Functional Test - Water Spray Curtain Boundary Number 1	366	730
ST-76J46	Heat Detector Functional Test - Water Spray Curtain Boundary Number 2	366	730
ST-76J47	Heat Detector Functional Test - Water Spray Curtain Boundary Number 3	366	730
ST-76J48	Heat Detector Functional Test - Water Spray Curtain Boundary Number 4	366	730
ST-76J49	Heat Detector Functional Test - Stairwell Water Spray Boundary Number 5	366	730
ST-76J50	Heat Detector Functional Test - Stairwell Water Spray Boundaries Numbers 6 and 8	366	730
ST-76J51	Heat Detector Functional Test - Stairwell Water Spray Boundary Number 7	366	730
ST-76J52	Fire Area 1E Ultraviolet Flame Detector Test	180	365
ST-76J53	Control Room Battery Powered Smoke Detector Test	180	180
ST-76J54	Control Room Battery Powered Smoke Detector Battery Replacement	365	365
ST-76J55	South Emergency Switchgear Room Cardox System Simulated Automatic and Manual Initiation Test	540	Prev. Del.
ST-76J56	South Emergency Switchgear Room Cardox System Simulated Automatic Actuation and Manual Initiation Test	540	Prev. Del.
ST-76J57	West Electric Bay Cardox System Simulated Automatic Actuation and Manual Initiation Test	540	Prev. Del.

PROCEDURE NUMBER	TITLE	CURRENT FREQUENCY (Days)	RECOMM. FREQU. (Days)
ST-76J58	East Electric Bay Cardox System Simulated Automatic Actuation and Manual Initiation Test	540	Prev. Del.
ST-76J59	North Cable Tunnel Cardox System Simulated Automatic Actuation and Manual Initiation Test	540	Prev. Del.
ST-76J60	South Cable Tunnel Cardox System Simulated Automatic Actuation and Manual Initiation Test	540	Prev. Del.
ST-76J61	Cable Spreading Room Cardox System Simulated Automatic Actuation and Manual Initiation Test	540	Prev. Del.
ST-76K	Fire Header Integrity and Nozzle Inspection	540	Prev. Del.
ST-76M	Nozzle Air Flow Test for Standby Gas Treatment System	1080	1080
ST-76N	Nozzle Air Flow Test for HPCI System	1080	5 Yrs.
ST-76P	Nozzle Air Flow Test For RCIC System	1080	5 Yrs.
ST-76U	Fire System Flow Test	1080	5 Yrs.

514 → 71

ST-76A

**PROCEDURE TITLE:** FIRE PROTECTION SYSTEM WEEKLY CHECKS, Rev. 11

**PROCEDURE SCOPE:** This procedure provides inspections for plant equipment associated with the power block and power production function. It does not include equipment or systems installed to protect site support facilities.

**PROCEDURE FUNCTION:** This procedure provides a weekly check of various fire protection features (system pressure, battery condition, CO2 Tank Level, Fire Doors, etc.) To verify their continued readiness.

**CURRENT FREQUENCY:** Weekly (Once per 7 Days)

**DISCUSSION:** A review of 197 performances of the procedure over a period of four years found only two "apparent failures" of the procedure acceptance criteria. In both of these instances, the "apparent failures" recorded were due to planned or ongoing maintenance of equipment which placed the equipment being surveilled in an out-of-service state which prevented the surveillance from being performed (a "failure" according to AP-19.01, Surveillance Testing Program, the procedure which governs the conduct of surveillances). Neither of these instances was the result of equipment failures and neither represented conditions which would have resulted in the equipment being unable to perform its design function.

Revision 10 of this procedure added section 8.7 which performs testing of the multiplexer trouble alarm function. Thus, this function has been tested successfully approximately 125 times since then. Revision 11 of this procedure added section 8.8 which performs a lamp test of the FPP panel (previously performed via ST-40D and 40X). This feature therefore has been successfully tested approximately 28 times via this procedure.

Thus, over an extended time period, the equipment and parameters monitored by this procedure have demonstrated excellent reliability and stability and warrant less frequent monitoring.

The monitoring of the pneumatic tank pressure is not needed since the pressure is maintained by the system and reduction in system pressure below a critical level is alarmed in the control room. This section should be deleted.

The monitoring of the West Diesel Fire Pump (76P-1) battery electrolyte level and voltage has demonstrated that the electrolyte level and battery voltage level remains stable over long periods of time and this testing should be performed once every month. The monthly data should then be trended over a two year period to determine whether electrolyte level or voltage requires action on a monthly basis. If no action is required monthly then the procedure should be extended to once every two months. In addition maintenance procedure MP-076.04 provides preventive maintenance activities for the Diesel Fire Pump Batteries which provides additional assurance that they will continue to be available and reliable.

The EDG Room drain running traps have a limited number of scenarios which would result in them drying out. Even in this condition, they would be limited contributors to the outcome of a fire event which would have an extended probability of occurrence. Drying out of the drain traps would provide an escape path for Carbon Dioxide

fire suppressant which would result in its concentration being reduced. Given the conservatism in the design concentration provided (as indicated in the Fire Protection System Design Basis Document) and the expected fire scenarios and the expected fire brigade response, the affect would be minimal. Based on these factors, the check of these traps should be extended to once per month. The monthly data should then be trended over a two year period to determine whether the traps require attention monthly and if not, the frequency should be extended to once every two months. This determination does not include consideration of past performance because the procedure pre-conditions the results by allowing success even if the as-found condition is not satisfactory.

**CONCLUSION:** The check of the hydro-pneumatic pressure tank provides no benefit and should be eliminated. The battery electrolyte level check and voltage level check has been performed successfully for a long period of time and warrants extension to monthly. Following two years of successful monthly testing these items could be extended to bi-monthly (once every two months). The EDG Room drain traps are not likely to dry out if the checks are extended to monthly and their contribution to a fire scenario is not likely to be significant. Thus the drain traps should be check on a monthly basis. The pressure and level checks of the carbon dioxide storage tanks is not required by NFPA standards and is not productive since low level and/or pressure conditions for these tanks is monitored electronically and alarmed in the control room. The fire doors checked as part of this procedure are normally locked closed and the doors are strictly controlled via other programs. Access to these areas is limited and keys are controlled. The doors have not been found in the unlocked position during any of the tests over the six year period which demonstrates the success of the controls in place. These doors can be checked monthly. The trouble alarm and lamp tests have been successfully performed for a reasonable time period and warrant extension to once per month.

**ST-76AD**

**PROCEDURE TITLE:** EAST DIESEL FIRE PUMP 76-P4 PERFORMANCE TEST, Rev. 1

**PROCEDURE SCOPE:** East Diesel Fire Pump 76P-4

**PROCEDURE FUNCTION:** To determine the flow characteristics of the East Diesel Fire Pump at various flow points.

**CURRENT FREQUENCY:** Annually

**DISCUSSION:** A review of five past performances of the procedure over a period of three years found two "apparent failures" which upon investigation were not failures of the ability of the equipment to perform its design function. The apparent failures were due to problems with the procedure design and testing setup that were unrelated to the equipment performance. Thus, the equipment has demonstrated good performance over a three year period.

**CONCLUSION:** The performance history associated with this test warrants the extension of this performance test to once per operating cycle.

ST-76AC

**PROCEDURE TITLE:** EAST DIESEL FIRE PUMP 76-P4 PERFORMANCE TEST, Rev. 3

**PROCEDURE SCOPE:** East Diesel Fire Pump 76P-4

**PROCEDURE FUNCTION:** Automatic start, twenty minute run and remote manual start of the East Diesel Fire Pump 76P-4.

**CURRENT FREQUENCY:** Weekly

**DISCUSSION:** A review of 279 past performances over a period of six years found 27 "apparent failures" of the test acceptance criteria. Many of these apparent failures were the recurrence of the same problem over several consecutive weekly periods until the problem was corrected. Conditions which potentially challenged the ability of the pump to perform its design function occurred seven times over the six year period with one failure occurring in 1991, two in 1993, one in 1995 and three in 1996.

This failure history, particularly the recent failures within a short time period, are a cause for concern and warrant further attention beyond the scope of this review. Lacking further review, it would not be prudent to extend the frequency of this surveillance at this time.

**CONCLUSION:** The past performance of this test, especially the recent performance trends, preclude the extension of the frequency of performance of this test at this time. A more detailed analysis of the engine/pump failures may support a change to this conclusion.

ST-76AG

**PROCEDURE TITLE:** FIRE PROTECTION BATTERY ROOM CORRIDOR MAIN DRAIN TEST, Rev. 1

**PROCEDURE SCOPE:** Battery Room Corridor Fire Protection System

**PROCEDURE FUNCTION:** To demonstrate that water supply is available to the Battery Room Corridor Fire Protection System.

**CURRENT FREQUENCY:** Quarterly

**DISCUSSION:** A review of sixteen past performances of the procedure over a period of four years found that the test was successfully completed during each scheduled performance. This excellent performance record demonstrates that administrative controls for equipment operation and status in combination with the strict maintenance of the capability of the fire protection water supply warrant the incorporation of this testing into the functional testing of the system. Given the above controls and the limited capability of this test to uncover water supply system problems, the incremental benefit of this test does not warrant it being performed more frequently than in conjunction with the overall system functional test.

The performance demonstrated in previous testing shows the effectiveness of other site controls (access control, valve position monitoring and verification, equipment status control, etc.) in maintaining the availability of the fire protection system water supply. In addition, the test is of limited value due to the relatively small size of the system piping and isolation valve and the inability of this type of test to uncover significant flow blockages in pipe of this size.

**CONCLUSION:** Based on the above factors, it is recommended that this testing be incorporated into the system functional test and that this procedure (ST-76AG) be eliminated.

**ST-76B**

**PROCEDURE TITLE:** ELECTRIC FIRE PUMP 76P-2 OPERATIONAL CHECK, Rev. 12

**PROCEDURE SCOPE:** Electric Fire Pump 76P-2

**PROCEDURE FUNCTION:** To demonstrate the electric fire pump is capable of starting manually from the control room, starting automatically on low pressure, operating satisfactorily for twenty minutes and starting manually from the local control panel.

**CURRENT FREQUENCY:** Weekly

**DISCUSSION:** A review of 244 past performances of the procedure over a period of five years found that the test was completed satisfactorily over the entire period without a recorded failure. This is an excellent performance record which supports the extension of this testing from weekly to monthly.

**CONCLUSION:** The excellent performance of this equipment during past testing demonstrates its reliability and warrants extension of the testing to monthly.

ST-76C

**PROCEDURE TITLE:** WEST DIESEL FIRE PUMP 76P-1 OPERATION CHECK, Rev. 14

**PROCEDURE SCOPE:** West Diesel Fire Pump 76P-1

**PROCEDURE FUNCTION:** To demonstrate the west diesel fire pump is capable of starting automatically on a low pressure signal, operating satisfactorily for twenty minutes and starting manually from the control room and the local control panel.

**CURRENT FREQUENCY:** Weekly

**DISCUSSION:** A review of 198 past performances of the procedure over a period of four years found that there were three "apparent failures" in 1993. Further review indicated that only one of these had the potential to affect the equipment operability and only this one represents an actual failure for the purpose of this evaluation. Thus, the performance history associated with this procedure for this equipment is excellent and warrants extension of the testing frequency to monthly. In addition, maintenance procedure MP-076.01 is utilized to perform preventive maintenance on the Diesel Fire Pump Engine which provides additional assurance that the fire pump will be available and reliable.

**CONCLUSION:** The excellent past performance of this equipment when tested in accordance with this procedure warrants extending the testing frequency to once per month.

ST-76D

**PROCEDURE TITLE:** HIGH PRESSURE WATER AND CARDOX FIRE PROTECTION SYSTEM VALVE POSITION CHECK, Rev. 18

**PROCEDURE SCOPE:** Fire Protection Water Supply Isolation and Control valves in the distribution system and branch connections except for valves that are electrically supervised.

**PROCEDURE FUNCTION:** To check the position of fire protection system valves monthly and to cycle selected valves annually during the month of June. Valves which are equipped with electrical position switches are excluded from this procedure.

**CURRENT FREQUENCY:** Monthly (Position Verification) Annual (Valve Exercise)

**DISCUSSION:** A review of 59 past performances of the procedure over a period of five years indicated there were six "apparent failures" of the procedure acceptance criteria. Further review of these apparent failures indicated that there were only three instances (each involving a single valve) that had the potential to affect the ability of the equipment to perform its design function. All three of these instances involved difficulty with completing the annual exercising of the valves and no instances were recorded where valves were found in an inappropriate position.

The excellent performance record of the monthly valve position check portion of this procedure validates the effectiveness of plant controls on equipment operation, access control, and training; all of which contribute to maintaining the fire protection system valves in their correct position. These controls, in addition to locking of the valves, as demonstrated by the performance record of the inspections, are sufficiently effective to warrant extending the frequency of the valve position verifications inspection to once per quarter.

Several related issues with regard to this procedure bear discussion. The procedure specifies a monthly "active" valve position check involving physical manipulation of the valve for Non-Post Indicator Valves. This process is above and beyond the requirement of NFPA 25 for OS&Y and similar indicating valves which represent the majority of the fire protection system valves in the flow path. The procedure should be revised to conduct a simple visual verification of the valve position monthly. The physical valve position verification is performed at least annually as part of the valve exercise and this, combined with the other administrative controls mentioned above, is sufficient.

Valves which are equipped with electrical position switches are excluded from this procedure and are cycled semi-annually as part of the fire detection zone circuit testing (according to this procedure). NFPA 25 requires valves with supervisory position switches to be inspected monthly to verify position and this evaluation concludes that it is acceptable to extend that inspection to quarterly. The evaluation of acceptability of performing this inspection semi-annually for valves with position switches was not reviewed.

Note: The frequency of inspection of hydrant curb valves has been extended to once per year utilizing the basis provided in Safety Evaluation JAF-SE-96-067. These valves are excluded from the discussions contained herein.

**CONCLUSION:** The excellent past performance demonstrated by the monthly valve position verification portion of this procedure warrants extension of the frequency of the inspection to quarterly.

The annual valve exercise is a preventive maintenance activity that aids in maintaining the operability of the valves and provides a physical position verification. This activity adds value to the fire protection program, provides justification for extending the frequency of the monthly valve position inspections and should be maintained at its current frequency.

JAF should consider performing the visual position verification for all of the accessible valves in the fire protection flow path at the same frequency or verify that adequate justification has been provided for extending the inspection of the supervised valves to semi-annual. It is further suggested that the valve tamper switches (traditionally high maintenance items) be abandoned and the affected valves locked in their correct position and visually verified quarterly. This would reduce the current semi-annual cycling to once per year and eliminate the supervisory alarm testing for these valves at the minimal cost of increasing the visual inspection frequency from semi-annual to quarterly.

**ST-76E**

**PROCEDURE TITLE:** MONTHLY FIRE HOSE STATION INSPECTIONS, Rev. 11

**PROCEDURE SCOPE:** Fire hose stations within the power block area serving safety and non-safety related areas.

**PROCEDURE FUNCTION:** To provide a visual inspection of the correct configuration and material condition of the listed hose stations and their associated equipment (i.e. hose, valves, nozzle).

**CURRENT FREQUENCY:** Monthly

**DISCUSSION:** A review of 61 past performances of the procedure over a period of five years found four "apparent failures" of the procedure to meet the acceptance criteria. Further investigation of these apparent failures indicated that none of them had the potential to affect the ability of the equipment to perform its design function. Thus, over an extended time period, the equipment has demonstrated excellent reliability and warrants less frequent inspections.

**CONCLUSION:** Extend the frequency of the hose station inspection from monthly to quarterly.

ST-76G

**PROCEDURE TITLE:** HIGH PRESSURE WATER FIRE PROTECTION SYSTEM FLUSH, Rev. 7

**PROCEDURE SCOPE:** High pressure water fire protection yard and internal loops.

**PROCEDURE FUNCTION:** To flush the high pressure water fire protection yard and internal loops.

**CURRENT FREQUENCY:** Semi-annually

**DISCUSSION:** A review of 10 past performances of the procedure over a period of five years found no failures of the test to meet the acceptance criteria. The acceptance criteria are for flushing the piping until the water is clear and observing for no indications of obstructions, excessive silt or gravel. Such flushing of the yard and interior supply piping is not required by NFPA Standards with the exception that fire hydrants are required to be flushed annually. This procedure does not currently provide for flushing of fire hydrants and so that requirement is not addressed here. Fire hydrants are flushed on an annual basis via procedure FPP-3.5.

**CONCLUSION:** The flushing performed by this procedure is not required by national consensus standards and does not appear to be dictated by special considerations such as water supply source, etc. It is recommended that this flushing be eliminated upon verification that the fire hydrant flushing required by NFPA 25 is provided in some other test procedure.

**ST-76H**

**PROCEDURE TITLE:** VALVE OPERATIONAL TEST, Rev. 10

**PROCEDURE SCOPE:** Fire Protection sectionalizing or control post indicator valves.

**PROCEDURE FUNCTION:** To verify the position of, lubricate and functionally test (operate) the fire protection post indicator valves.

**CURRENT FREQUENCY:** Annually

**DISCUSSION:** A review of 6 past performances of the procedure over a period of six years found four "apparent failures." A further review of these apparent failures indicated one instance where the ability of the equipment to perform its design function was potentially jeopardized. The annual valve exercise is a preventive maintenance activity that aids in maintaining the operability of the valves and provides a physical position verification. This activity adds value to the fire protection program, provides justification for extending the frequency of the monthly valve position inspections and should be maintained at its current frequency.

**CONCLUSION:** Maintain this testing at its current frequency as a beneficial activity.

ST-76I

**PROCEDURE TITLE:** MONTHLY PORTABLE FIRE EXTINGUISHER INSPECTION PROCEDURE,  
Rev. 17

**PROCEDURE SCOPE:** Plant portable fire extinguishers.

**PROCEDURE FUNCTION:** To verify plant portable fire extinguishers are available and ready for use.

**CURRENT FREQUENCY:** Monthly

**DISCUSSION:** A review of 71 past performances of the procedure over a period of six years found there were only two "apparent failures" recorded. A review of the procedure indicates that the procedure allow for acceptance criteria to be met by replacing a defective or "failed" extinguisher, thus pre-conditioning the results. Therefore, an evaluation of the performance test results would not be a valid indicator of the true performance of the equipment.

JAF outsources the repair, refilling and hydrostatic testing of fire extinguishers and thus there is a high likelihood that records are available which could be used to validate the "failure" rate of fire extinguishers. This information could alternatively be used to extend the frequency of the monthly surveillance.

**CONCLUSION:** No recommendation can be made regarding the appropriate inspection frequency based on past performance of the equipment because the procedure pre-conditions the success by allowing acceptance criteria to be met even if the as-found condition is not acceptable. There is a high probability, based on reviews performed at other nuclear generating facilities, that the past performance is excellent and warrants extension of the inspection frequency from monthly to quarterly. Past performance of the equipment at JAF could be evaluated utilizing data from vendors who provide repair and recharging of fire extinguishers for the plant on a contract basis. Such a review is beyond the scope of this project.

ST-76J1

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - EDG BUILDING ZONE 1 (A & C),  
Rev. 8

**PROCEDURE SCOPE:** EDG A&C Heat Detectors and Sprinkler System

**PROCEDURE FUNCTION:** To perform a channel functional test of heat detectors and to verify that the automatic valves in the flow path actuate to their correct positions.

**CURRENT FREQUENCY:** Annually

**DISCUSSION:** A review of twelve past performances of the procedure over a period of six years found that there were no instances of failure of the acceptance criteria recorded. (The procedure was conducted semi-annually prior to the last revision and testing of the supervisory circuit of the EDG spray system was added in the last revision of the procedure.) The performance record of the equipment is validated by the success of past performances of the testing accomplished by this procedure and warrants less frequent testing. The heat detectors utilized for this system are extremely reliable, simple devices that can be tested once per operating cycle. The suppression system components (alarms, valve actuation, supervisory circuits) have demonstrated a high degree of reliability over an extended time period and also warrant testing once per operating cycle.

Although the supervisory circuit testing has not been conducted over a long time period, the function has been in service and operating reliably over that time period as demonstrated by its successful operation during the most recent completion of the test procedure. That is, if the circuit supervisory function had failed, it would not have been identified and would not have been repaired since it was not previously subjected to routine testing. The test thus proved that the capability had been operating reliably over the entire time period. Given this performance and the limited capability of this function to prevent the system from performing its design function, it is acceptable to extend the frequency of the testing of this function to once per operating cycle.

**CONCLUSION:** The equipment has exhibited excellent reliability as demonstrated by the successful performance of past testing over an extended time period. Based on this performance record, the testing can be extended to once per operating cycle.

ST-76J2

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - EDG BUILDING ZONE 2 (B & D),  
Rev. 6

**PROCEDURE SCOPE:** EDG B&D Heat Detectors and Sprinkler System

**PROCEDURE FUNCTION:** To perform a channel functional test of heat detectors and to verify that the automatic valves in the flow path actuate to their correct positions.

**CURRENT FREQUENCY:** Annually

**DISCUSSION:** A review of twelve past performances of the procedure over a period of six years found that there were no instances of failure of the acceptance criteria recorded. (The procedure was conducted semi-annually prior to the last revision and testing of the supervisory circuit of the EDG spray system was added in the last revision of the procedure.) The performance record of the equipment is validated by the success of past performances of the testing accomplished by this procedure and warrants less frequent testing. The heat detectors utilized for this system are extremely reliable, simple devices that can be tested once per operating cycle. The suppression system components (alarms, valve actuation, supervisory circuits) have demonstrated a high degree of reliability over an extended time period and also warrant testing once per operating cycle.

Although the supervisory circuit testing has not been conducted over a long time period, the function has been in service and operating reliably over that time period as demonstrated by its successful operation during the most recent completion of the test procedure. That is, if the circuit supervisory function had failed, it would not have been identified and would not have been repaired since it was not previously subjected to routine testing. The test thus proved that the capability had been operating reliably over the entire time period. Given this performance and the limited capability of this function to prevent the system from performing its design function, it is acceptable to extend the frequency of the testing of this function to once per operating cycle.

**CONCLUSION:** The equipment has exhibited excellent reliability as demonstrated by the successful performance of past testing over an extended time period. Based on this performance record, the testing can be extended to once per operating cycle.

ST-76J3

**PROCEDURE TITLE:** ULTRA VIOLET FLAME AND HEAT DETECTOR FUNCTIONAL TESTS -  
RECIRCULATION SYSTEM MG ROOM, Rev. 11

**PROCEDURE SCOPE:** Heat and Flame detectors and automatic valve actuation for the MG Room fire  
suppression system.

**PROCEDURE FUNCTION:** To perform a channel functional test of ultra violet flame and heat detectors, and  
to verify that the automatic valves in the flow path actuate to their correct positions.

**CURRENT FREQUENCY:** Semi-annual

**DISCUSSION:** A review of twelve past performances of the procedure over a period of six years indicated  
that one "apparent failure" was recorded. Further review of this apparent failure indicated that it was due to  
problems with a drip check valve which would not have prevented the system from performing its design function.  
Thus, the system and its associated detectors have exhibited an excellent performance history over a long time  
period and warrant less frequent testing. The heat detectors utilized for this system are similar to others utilized  
at JAF and are simplistic devices which have limited failure modes. The combined performance of these devices  
is considered excellent.

**CONCLUSION:** The plant equipment has exhibited excellent performance over an extended time period  
as demonstrated by the successful completion of the surveillance testing. This performance warrants extension of  
the testing to once per operating cycle.

ST-76J4

**PROCEDURE TITLE:** WEST CABLE TUNNEL SMOKE DETECTOR AND SPRINKLER TEST, Rev. 14

**PROCEDURE SCOPE:** Smoke detectors and sprinkler system within the West Cable Tunnel

**PROCEDURE FUNCTION:** This test procedure performs a channel functional test of the smoke detectors, a test of the supervisory capability of the detection zones, a test of the valve position switch and alarm circuit and a test of the water flow alarm capability with flow through the inspector's test valve.

**CURRENT FREQUENCY:** Annual (recently changed from semi-annual to annual)

**DISCUSSION:** A review of 11 past performances of the procedure over a period of six years indicated that only one "apparent failure" was recorded for this test. This apparent failure was due to a broken indicating light and did not represent a condition that had the potential to prevent the equipment from performing its design function. Thus, over an extended time period the detection equipment has demonstrated excellent performance and the extension of the testing frequency to once per operating cycle is appropriate. The suppression system is a relatively new wet-pipe suppression system and the testing verifies the generation of a water flow alarm when the inspector's test valve is opened. The test is a relatively simple one which verifies that the piping to the inspectors test valve is not blocked and the water flow alarm is operable. There is only a remote likelihood of the piping becoming obstructed during normal plant operation and the water flow alarm is a redundant fire indication in this area whose loss would not prevent the notification of the control room of a fire. It is appropriate to extend this testing to once per operating cycle in line with the detectors for this system.

Additionally, the procedure provides for testing the valve tamper switch and alarm circuitry for the suppression system control valve. Providing a chain and lock on this valve and eliminating the tamper switch would reduce the testing (visual verification is required either way) and maintenance associated with the switch while providing positive physical control of the valve position.

**CONCLUSION:** The frequency of performance of this procedure has recently been extended from semi-annual to annual. An additional extension to once per operating cycle is warranted based on the demonstrated performance of the equipment. Additional savings could be obtained by abandoning the suppression system control valve tamper switch and locking the valve in the open position.

ST-76J5

**PROCEDURE TITLE:** EAST CABLE TUNNEL SMOKE DETECTOR AND SPRINKLER TEST, Rev. 12

**PROCEDURE SCOPE:** Smoke detectors and sprinkler system within the East Cable Tunnel

**PROCEDURE FUNCTION:** This test procedure performs a channel functional test of the smoke detectors, a test of the supervisory capability of the detection zones, a test of the valve position switch and alarm circuit and a test of the water flow alarm capability with flow through the inspector's test valve.

**CURRENT FREQUENCY:** Annual (recently changed from semi-annual to annual)

**DISCUSSION:** A review of 13 past performances of the procedure over a period of six years indicated that four "apparent failures" were recorded for this test. Three of these apparent failures were due to procedure problems following modification of the equipment and one was due to unrelated equipment being out of service. None of these apparent failures represented a condition that had the potential to prevent the equipment from performing its design function. Thus, over an extended time period the detection equipment has demonstrated excellent performance and the extension of the testing frequency to once per operating cycle is appropriate. The suppression system is a relatively new wet-pipe suppression system and the testing verifies the generation of a water flow alarm when the inspector's test valve is opened. The test is a relatively simple one which verifies that the piping to the inspectors test valve is not blocked and the water flow alarm is operable. There is only a remote likelihood of the piping becoming obstructed during normal plant operation and the water flow alarm is a redundant fire indication in this area whose loss would not prevent the notification of the control room of a fire. It is appropriate to extend this testing to once per operating cycle in line with the detectors for this system.

Additionally, the procedure provides for testing the valve tamper switch and alarm circuitry for the suppression system control valve. Providing a chain and lock on this valve and eliminating the tamper switch would reduce the testing (visual verification is required either way) and maintenance associated with the switch while providing positive physical control of the valve position.

**CONCLUSION:** The frequency of performance of this procedure has recently been extended from semi-annual to annual. An additional extension to once per operating cycle is warranted based on the demonstrated performance of the equipment. Additional savings could be obtained by abandoning the suppression system control valve tamper switch and locking the valve in the open position.

ST-76J10

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TESTS - HPCI PUMP AREA, Rev. 15

**PROCEDURE SCOPE:** HPCI Pump Area heat detectors and suppression system

**PROCEDURE FUNCTION:** To perform a channel functional test of heat detectors and to verify that the automatic valves in the flow path actuate to their correct position.

**CURRENT FREQUENCY:** Annual (recently extended from semi-annual)

**DISCUSSION:** A review of 11 past performances of the procedure over a period of six years indicated that there were no failures of the equipment to meet the acceptance criteria. Thus, this equipment has exhibited excellent performance over an extended time period and warrants less frequent testing. Although the testing was recently extended from semi-annual to annual, the heat detector utilized in this system is extremely reliable and simple and its testing frequency can be extended to once per operating cycle. The suppression system manual and automatic actuation testing has also demonstrated that the equipment is highly reliable and its testing frequency can be revised to once per operating cycle.

Additionally, the procedure provides for testing the valve tamper switch and alarm circuitry for the suppression system control valve. Providing a chain and lock on this valve and eliminating the tamper switch would reduce the testing (visual verification is required either way) and maintenance associated with the switch while providing positive physical control of the valve position.

**CONCLUSION:** The equipment tested by this procedure has demonstrated that it is highly reliable and warrants less frequent testing. The heat detector testing and system actuation testing can be extended to once per operating cycle, based on its excellent record of past performance. Additional savings could be obtained by abandoning the suppression system control valve tamper switch and locking the valve in the open position.

ST-76J11

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TESTS - RCIC PUMP AREA, Rev. 14

**PROCEDURE SCOPE:** RCIC Pump Area heat detectors and suppression system.

**PROCEDURE FUNCTION:** To perform a channel functional test of heat detectors, and to verify that the automatic valves in the flow path actuate to their correct positions.

**CURRENT FREQUENCY:** Annual (recently extended from semi-annual)

**DISCUSSION:** A review of 12 past performances of the procedure over a period of six years indicated that there were no failures of the equipment to meet the acceptance criteria. Thus, this equipment has exhibited excellent performance over an extended time period and warrants less frequent testing. Although the testing was recently extended from semi-annual to annual, the heat detector utilized in this system is extremely reliable and simple and its testing frequency can be extended to once per operating cycle. The suppression system manual and automatic actuation testing has also demonstrated that the equipment is highly reliable and its testing frequency can be revised to once per operating cycle.

Additionally, the procedure provides for testing the valve tamper switch and alarm circuitry for the suppression system control valve. Providing a chain and lock on this valve and eliminating the tamper switch would reduce the testing (visual verification is required either way) and maintenance associated with the switch while providing positive physical control of the valve position.

**CONCLUSION:** The equipment tested by this procedure has demonstrated that it is highly reliable and warrants less frequent testing. The heat detector testing and system actuation testing can be extended to once per operating cycle, based on its excellent record of past performance. Additional savings could be obtained by abandoning the suppression system control valve tamper switch and locking the valve in the open position.

ST-76J12

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - SGT FILTER A, Rev. 10

**PROCEDURE SCOPE:** SGT Filter A heat detectors and suppression system

**PROCEDURE FUNCTION:** To perform a channel functional test of heat detectors and to verify automatic valves in the flow path actuate to their correct positions.

**CURRENT FREQUENCY:** Annual (recently extended from semi-annual)

**DISCUSSION:** A review of 13 past performances of the procedure over a period of six years indicated that there were three "apparent failures" of the equipment to meet the acceptance criteria. Further review of the apparent failures identified one instance where the potential existed for the equipment to be unable to perform its design function which occurred in 1995. Twelve additional performances of procedure ST-76J13, which is performed on identical equipment were successfully performed over the same six year period without a single failure. This excellent performance record warrants extension of the testing frequency.

Additionally, the procedure provides for testing the valve tamper switch and alarm circuitry for the suppression system control valve. Providing a chain and lock on this valve and eliminating the tamper switch would reduce the testing (visual verification is required either way) and maintenance associated with the switch while providing positive physical control of the valve position.

**CONCLUSION:** The equipment tested by this procedure has demonstrated that it is highly reliable and warrants less frequent testing. The heat detector testing and system actuation testing can be extended to once per operating cycle, based on its excellent record of past performance. Additional savings could be obtained by abandoning the suppression system control valve tamper switch and locking the valve in the open position.

ST-76J13

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - SGT FILTER B, Rev. 13

**PROCEDURE SCOPE:** SGT Filter B heat detectors and suppression system

**PROCEDURE FUNCTION:** To perform a channel functional test of heat detectors and to verify automatic valves in the flow path actuate to their correct positions.

**CURRENT FREQUENCY:** Annual (recently extended from semi-annual)

**DISCUSSION:** A review of 12 past performances of the procedure over a period of six years indicated that there were two "apparent failures" of the equipment to meet the acceptance criteria. Further review of the apparent failures indicated that neither of these instances were cases of failures of the equipment to operate to perform its design function. Thirteen additional performances of procedure ST-76J12, which is performed on identical equipment were successfully performed over the same six year period with only a single failure. This excellent performance record warrants extension of the testing frequency.

Additionally, the procedure provides for testing the valve tamper switch and alarm circuitry for the suppression system control valve. Providing a chain and lock on this valve and eliminating the tamper switch would reduce the testing (visual verification is required either way) and maintenance associated with the switch while providing positive physical control of the valve position.

**CONCLUSION:** The equipment tested by this procedure has demonstrated that it is highly reliable and warrants less frequent testing. The heat detector testing and system actuation testing can be extended to once per operating cycle, based on its excellent record of past performance. Additional savings could be obtained by abandoning the suppression system control valve tamper switch and locking the valve in the open position.

ST-76J14

**PROCEDURE TITLE:** SMOKE AND HEAT DETECTOR FUNCTIONAL TESTS - NORTH CABLE TUNNEL, Rev. 15

**PROCEDURE SCOPE:** Smoke and heat detectors and Carbon Dioxide system protecting the North Cable Tunnel.

**PROCEDURE FUNCTION:** To functionally test the smoke and heat detectors and to verify that automatic valves in the CO2 flow path actuate correctly. Additionally, the actuation of the fire doors/dampers upon CO2 actuation is tested.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of the procedure over a period of six years identified one "apparent failure" of the test to meet the acceptance criteria. Further review of this apparent failure indicated that the problem involved the circuit supervisory capability and did not have the potential to prevent the system from performing its design function. The performance frequency has recently been lengthened to annual from semi-annual. Based on the past performance of the smoke detectors as evidenced by the data from the detectors tested via this procedure and as described in the evaluation for procedures ST-76J14-J21, it is appropriate for the smoke detector testing to be extended to once per operating cycle. The heat detectors, because of their simple design and high reliability, as demonstrated in the past performance of this test and other tests of similar devices (i.e. ST-76J1-J3), can be tested once per operating cycle. The system functional testing for the CO2 system can also be extended to once per operating cycle based on the successful past performance of the equipment. In addition, maintenance procedures MP-076.16, Fire Door Maintenance and MP-076.20, Fire Damper Maintenance are utilized to perform preventive maintenance on the fire doors and dampers which provides additional assurance that they will continue to be available and reliable.

**CONCLUSION:** The procedure frequency should be extended so that the testing can be conducted once per operating cycle.

ST-76J15

**PROCEDURE TITLE:** SMOKE AND HEAT DETECTOR FUNCTIONAL TESTS - SOUTH CABLE TUNNEL, Rev. 18

**PROCEDURE SCOPE:** Smoke and heat detectors and Carbon Dioxide system protecting the South Cable Tunnel.

**PROCEDURE FUNCTION:** To functionally test the smoke and heat detectors and to verify that automatic valves in the CO2 flow path actuate correctly. Additionally, the actuation of the fire doors/dampers upon CO2 actuation is tested.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 13 past performances of the procedure over a period of six years identified two "apparent failures" of the test to meet the acceptance criteria. Further review of these apparent failures indicated that only one had the potential to prevent the system from performing its design function and this occurred in 1992. The performance frequency has recently been lengthened to annual from semi-annual. Based on the past performance of the smoke detectors as evidenced by the data from the detectors tested via this procedure and as described in the evaluation for procedures ST-76J14-J21, it is appropriate for the smoke detector testing to be extended to once per operating cycle. The heat detectors, because of their simple design and high reliability, as demonstrated in the past performance of this test and other tests of similar devices (i.e. ST-76J1-J3), can be tested once per operating cycle. The system functional testing for the CO2 system can also be extended to once per operating cycle based on the successful past performance of the equipment. In addition, maintenance procedures MP-076.16, Fire Door Maintenance and MP-076.20, Fire Damper Maintenance are utilized to perform preventive maintenance on the fire doors and dampers which provides additional assurance that they will continue to be available and reliable.

**CONCLUSION:** The procedure frequency should be extended so that the testing can be conducted once per operating cycle.

ST-76J16

**PROCEDURE TITLE:** SMOKE AND HEAT DETECTOR FUNCTIONAL TESTS - CABLE SPREADING ROOM, Rev. 16

**PROCEDURE SCOPE:** Smoke and heat detectors and Carbon Dioxide system protecting the Cable Spreading Room.

**PROCEDURE FUNCTION:** To functionally test the smoke and heat detectors and to verify that automatic valves in the CO2 flow path actuate correctly. Additionally, the actuation of the fire doors/dampers upon CO2 actuation is tested.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 10 past performances of the procedure over a period of six years identified one "apparent failure" of the test to meet the acceptance criteria. Further review of this apparent failure indicated that the problem had the potential to prevent the system from performing its design function. This failure, involving the discharge timer performance occurred in 1995. The performance frequency has recently been lengthened to annual from semi-annual. Based on the past performance of the smoke detectors as evidenced by the data from the detectors tested via this procedure and as described in the evaluation for procedures ST-76J14-J21, it is appropriate for the smoke detector testing to be extended to once per operating cycle. The heat detectors, because of their simple design and high reliability, as demonstrated in the past performance of this test and other tests of similar devices (i.e. ST-76J1-J3), can be tested once per operating cycle. The system functional testing for the CO2 system can also be extended to once per operating cycle based on the successful past performance of the equipment. In addition, maintenance procedures MP-076.16, Fire Door Maintenance and MP-076.20, Fire Damper Maintenance are utilized to perform preventive maintenance on the fire doors and dampers which provides additional assurance that they will continue to be available and reliable.

**CONCLUSION:** The procedure frequency should be extended so that the testing can be conducted once per operating cycle.

ST-76J17

**PROCEDURE TITLE:** SMOKE AND HEAT DETECTOR FUNCTIONAL TESTS - WEST ELECTRIC BAY, Rev. 17

**PROCEDURE SCOPE:** Smoke and heat detectors and Carbon Dioxide system protecting the West Electric Bay.

**PROCEDURE FUNCTION:** To functionally test the smoke and heat detectors and to verify that automatic valves in the CO2 flow path actuate correctly. Additionally, the actuation of the fire doors/dampers upon CO2 actuation is tested.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of the procedure over a period of six years identified four "apparent failures" of the test to meet the acceptance criteria. Further review of these apparent failures indicated that there three failures which had the potential to prevent the system from performing its design function. One of the failures occurred in 1993 and two in 1995. Both of the failures in 1995 involved the failure of the dampers to operate properly. The performance frequency has recently been lengthened to annual from semi-annual. Based on the past performance of the smoke detectors as evidenced by the data from the detectors tested via this procedure and as described in the evaluation for procedures ST-76J14-J21, it is appropriate for the smoke detector testing to be extended to once per operating cycle. The heat detectors, because of their simple design and high reliability, as demonstrated in the past performance of this test and other tests of similar devices (i.e. ST-76J1-J3), can be tested once per operating cycle. The system functional testing for the CO2 system can not be extended to once per operating cycle based on the past performance of the equipment. It is possible that more extensive reviews of the failures and corrective actions may identify the potential for discounting the failures and extending the frequency of the system performance testing. In addition, maintenance procedures MP-076.16, Fire Door Maintenance and MP-076.20, Fire Damper Maintenance are utilized to perform preventive maintenance on the fire doors and dampers which provides additional assurance that they will continue to be available and reliable.

**CONCLUSION:** The procedure frequency should be extended so that the detector testing can be conducted once per operating cycle. It is not prudent to extend the frequency of the system functional testing without more extensive review and evaluation of the past performance problems.

ST-76J18

**PROCEDURE TITLE:** SMOKE AND HEAT DETECTOR FUNCTIONAL TEST - EAST ELECTRIC BAY, Rev. 18

**PROCEDURE SCOPE:** Smoke and heat detectors and Carbon Dioxide system protecting the East Electric Bay

**PROCEDURE FUNCTION:** To functionally test the smoke and heat detectors and to verify that automatic valves in the CO2 flow path actuate correctly. Additionally, the actuation of the fire doors/dampers upon CO2 actuation is tested.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 13 past performances of the procedure over a period of six years identified two "apparent failures" of the test to meet the acceptance criteria. Further review of these apparent failures indicated that neither involved the potential to prevent the system from performing its design function. The performance frequency has recently been lengthened to annual from semi-annual. Based on the past performance of the smoke detectors as evidenced by the data from the detectors tested via this procedure and as described in the evaluation for procedures ST-76J14-J21, it is appropriate for the smoke detector testing to be extended to once per operating cycle. The heat detectors, because of their simple design and high reliability, as demonstrated in the past performance of this test and other tests of similar devices (i.e. ST-76J1-J3), can be tested once per operating cycle. The system functional testing for the CO2 system can also be extended to once per operating cycle based on the successful past performance of the equipment. In addition, maintenance procedures MP-076.16, Fire Door Maintenance and MP-076.20, Fire Damper Maintenance are utilized to perform preventive maintenance on the fire doors and dampers which provides additional assurance that they will continue to be available and reliable.

**CONCLUSION:** The procedure frequency should be extended so that the testing can be conducted once per operating cycle.

ST-76J19

**PROCEDURE TITLE:** SMOKE AND HEAT DETECTOR FUNCTIONAL TESTS - SOUTH EMERGENCY SWITCHGEAR ROOM, Rev. 16

**PROCEDURE SCOPE:** Smoke and heat detectors and Carbon Dioxide system protecting the South Emergency Switchgear Room

**PROCEDURE FUNCTION:** To functionally test the smoke and heat detectors and to verify that automatic valves in the CO2 flow path actuate correctly. Additionally, the actuation of the fire doors/dampers upon CO2 actuation is tested.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 10 past performances of the procedure over a period of six years identified four "apparent failures" of the test to meet the acceptance criteria. Further review of these apparent failures indicated that two of the failures, in 1994, involved the failure of a damper to close properly. The associated work request indicates that this was due to an installation error that should not normally be present in the system or uncovered through routine testing. The remaining two failures, one in 1992 and one in 1991 involved numerous instances of the fire doors and dampers failing to close automatically. The performance frequency has recently been lengthened to annual from semi-annual. Based on the past performance of the smoke detectors as evidenced by the data from the detectors tested via this procedure and as described in the evaluation for procedures ST-76J14-J21, it is appropriate for the smoke detector testing to be extended to once per operating cycle. The heat detectors, because of their simple design and high reliability, as demonstrated in the past performance of this test and other tests of similar devices (i.e. ST-76J1-J3), can be tested once per operating cycle. The system functional testing for the CO2 system can not be extended based on the past performance of the equipment. The equipment performance during two tests in 1995 and one in 1996 has been good and following two additional successful test performances, the system functional testing could be extended to once per operating cycle. In addition, maintenance procedures MP-076.16, Fire Door Maintenance and MP-076.20, Fire Damper Maintenance are utilized to perform preventive maintenance on the fire doors and dampers which provides additional assurance that they will continue to be available and reliable.

**CONCLUSION:** The procedure frequency should be extended so that the detector testing can be conducted once per operating cycle. Following two successful annual system functional tests, the frequency can be extended to once per operating cycle.

ST-76J20

**PROCEDURE TITLE:** SMOKE AND HEAT DETECTOR FUNCTIONAL TESTS - NORTH EMERGENCY SWITCHGEAR ROOM, Rev. 15

**PROCEDURE SCOPE:** Smoke and heat detectors and Carbon Dioxide system protecting the North Emergency Switchgear Room

**PROCEDURE FUNCTION:** To functionally test the smoke and heat detectors and to verify that automatic valves in the CO2 flow path actuate correctly. Additionally, the actuation of the fire doors/dampers upon CO2 actuation is tested.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 12 past performances of the procedure over a period of six years identified eight "apparent failures" of the test to meet the acceptance criteria. Further review of these apparent failures indicated that seven of the performances resulted in failed acceptance criteria due to one or more fire doors failing to close properly (the other apparent failure involved problems with the procedure which did not affect the ability of the system to perform its design function). The fire door closure problems have been persistent over several years including both performances in 1995.

The performance frequency has recently been lengthened to annual from semi-annual. Based on the past performance of the smoke detectors as evidenced by the data from the detectors tested via this procedure and as described in the evaluation for procedures ST-76J14-J21, it is appropriate for the smoke detector testing to be extended to once per operating cycle. The heat detectors, because of their simple design and high reliability, as demonstrated in the past performance of this test and other tests of similar devices (i.e. ST-76J1-J3), can be tested once per operating cycle. The system functional testing for the CO2 system can not be extended based on the past performance of the equipment. Two additional successful annual tests without any additional failures would be needed to prudently justify extending the frequency of the functional testing of this system. In addition, maintenance procedures MP-076.16, Fire Door Maintenance and MP-076.20, Fire Damper Maintenance are utilized to perform preventive maintenance on the fire doors and dampers which provides additional assurance that they will continue to be available and reliable.

**CONCLUSION:** The procedure frequency should be extended so that the detector testing can be conducted once per operating cycle. Following two successful annual system functional tests, the frequency can be extended to once per operating cycle.

ST-76J21

**PROCEDURE TITLE:** SMOKE AND HEAT DETECTOR FUNCTIONAL TESTS - RELAY ROOM,  
Rev. 18

**PROCEDURE SCOPE:** Smoke and heat detectors and Carbon Dioxide system protecting the Relay Room.  
Ventilation system for the relay room.

**PROCEDURE FUNCTION:** To functionally test the smoke and heat detectors and to verify that automatic valves in the CO2 flow path actuate correctly and the Relay Room ventilation aligns correctly upon CO2 system actuation. Additionally, the actuation of the fire doors/dampers upon CO2 actuation is tested.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 8 past performances of the procedure over a period of six years identified two "apparent failures" of the test to meet the acceptance criteria. Further review of these apparent failures indicated that two of the failures occurred in 1991 and involved ventilation system component problems. The ventilation alignment was reworked since then and surveillance tested successfully during the last performance of the procedure. The other apparent failure, in 1995, was due to problems with the procedure that occurred as a result of the above modifications to the ventilation system re-alignment. The performance frequency has recently been lengthened to annual from semi-annual. Based on the past performance of the smoke detectors as evidenced by the data from the detectors tested via this procedure and as described in the evaluation for procedures ST-76J14-J21, it is appropriate for the smoke detector testing to be extended to once per operating cycle. The heat detectors, because of their simple design and high reliability, as demonstrated in the past performance of this test and other tests of similar devices (i.e. ST-76J1-J3), can be tested once per operating cycle. The system functional testing for the CO2 system should be monitored for two additional performances to ensure that the modified system reliability is adequate. Upon completion of two additional successful performances of the annual system functional test, the frequency could be extended to once per operating cycle. In addition, maintenance procedures MP-076.16, Fire Door Maintenance and MP-076.20, Fire Damper Maintenance are utilized to perform preventive maintenance on the fire doors and dampers which provides additional assurance that they will continue to be available and reliable.

**CONCLUSION:** The procedure frequency should be extended so that the detector testing can be conducted once per operating cycle. Following two successful annual system functional tests, the frequency can be extended to once per operating cycle.

ST-76J22

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - DIESEL FIRE PUMP ROOM AND RADWASTE SAMPLE SINK AREA, Rev. 7

**PROCEDURE SCOPE:** Diesel Fire Pump Room and Radwaste Sample Sink Area smoke detectors.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and associated supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 12 past performances of this procedure over a period of six years found that there were no recorded failures of the test acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J23

**PROCEDURE TITLE:** WEST DIESEL FIRE PUMP 76P-2 PERFORMANCE TEST, Rev. 9

**PROCEDURE SCOPE:** West Diesel Fire Pump

**PROCEDURE FUNCTION:** To demonstrate that 76P-1 develops at least 125 psig while flowing 2500 gpm and to record test data for evaluation of pump performance.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 4 past performances of this procedure over a period of four years found that two "apparent failures" had been recorded. Further review of these apparent failures indicated that neither had the potential to prevent the system from performing its design function. The pump has thus performed adequately over an extended time period and warrants extension of the performance test frequency to once per operating cycle.

**CONCLUSION:** The past performance of this pump over an extended time period warrants less frequent performance testing. It is recommended that the testing frequency for this equipment be extended to once per operating cycle.

ST-76J24

**PROCEDURE TITLE:** ELECTRIC FIRE PUMP 76P-2 PERFORMANCE TEST, Rev. 12

**PROCEDURE SCOPE:** Electric Fire Pump 76P-2

**PROCEDURE FUNCTION:** To demonstrate that 76P-2 develops at least 125 psig while flowing 2500 gpm and to record test data to evaluate pump performance.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 5 past performances of this procedure over a period of six years found that two "apparent failures" had been recorded. Further review of these apparent failures indicated potential equipment failure was involved. This performance history does not support extension of the testing frequency at this time. The most recent previous test (1996) was successful. Monitoring of the test performance for three additional cycles would be sufficient (if successful) to extend the frequency to once per operating cycle.

**CONCLUSION:** The past performance of the equipment does not support extension of the testing frequency at this time. Monitoring of the test for three additional successful performances would provide sufficient basis for extending the testing to once per operating cycle.

ST-76J25

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - RX BUILDING 326' - SOUTH WEST, Rev. 5

**PROCEDURE SCOPE:** Smoke detector zones 25, 26, 31 and 32.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J26

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - RX BUILDING 300' - NORTH,  
Rev. 8

**PROCEDURE SCOPE:** Smoke detector zones 17, 18 and 20.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 12 past performances of this procedure over a period of six years found two "apparent failures" of the test acceptance criteria. Further review of these apparent failures indicated that neither instance involved failures of any of the smoke detectors to respond appropriately to smoke (or approved test gas) input. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J27

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - RX BUILDING 326' - NORTH,  
Rev. 5

**PROCEDURE SCOPE:** Smoke detector zones 27 and 28.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 12 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet the acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J28

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - RX BUILDING 300' - SOUTH,  
Rev. 9

**PROCEDURE SCOPE:** Smoke detector zones 15, 16 and 21.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet the acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J29

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - RX BUILDING 272' - SOUTH,  
Rev. 6

**PROCEDURE SCOPE:** Smoke detector zones 7, 8, 9, 10, 12 and 13.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detection zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J30

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - RX BUILDING 272' - EAST, Rev. 6

**PROCEDURE SCOPE:** Smoke detector zones 3 and 6.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 12 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J31

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - RX BUILDING 272' - WEST, Rev. 7

**PROCEDURE SCOPE:** Smoke detector zones 4 and 5.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J32

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - EAST CRESCENT, Rev. 5

**PROCEDURE SCOPE:** Smoke detector zones 2 and 2A.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J33

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - WEST CRESCENT, Rev. 6

**PROCEDURE SCOPE:** Smoke detector zones 1 and 1A.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found that there was one "apparent failure." Further review of this apparent failure indicated that there was no potential for any of the smoke detectors to be unable to perform their design function. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J34

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - RX BUILDING 344' -  
SOUTHWEST, Rev. 6

**PROCEDURE SCOPE:** Smoke detector zones 35, 36, 41 and 43.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 12 past performances of the procedure over a period of six years found that there were two "apparent failures" of the test to meet acceptance criteria. Further review of these apparent failures indicated that neither of them involved instances where the smoke detectors failed to actuate and send an alarm to the control room as intended. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

**ST-76J35**

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - RX BUILDING 344' - NORTH,  
Rev. 5

**PROCEDURE SCOPE:** Smoke detector zones 37, 38 and 44.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 12 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J36

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - LPCI BATTERY ROOMS, Rev. 3

**PROCEDURE SCOPE:** Smoke detector zones 42 and 45.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 12 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J40

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - STATION BATTERY ROOMS,  
Rev. 6

**PROCEDURE SCOPE:** Smoke detector zones 74A, 74B, 75, 76 and 77.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J41

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - SAFETY PUMP ROOMS, Rev. 4

**PROCEDURE SCOPE:** Smoke detector zones 78 and 79.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J42

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - CONTROL ROOM VENTILATION ROOMS, Rev. 3

**PROCEDURE SCOPE:** Smoke detector zones 53 and 55.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 12 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J44

**PROCEDURE TITLE:** SMOKE DETECTOR FUNCTIONAL TEST - CONTROL ROOM VENT EXHAUST DUCTS, Rev. 2

**PROCEDURE SCOPE:** Smoke detector zone 54.

**PROCEDURE FUNCTION:** To functionally test smoke detectors and smoke detector zone supervisory alarm circuits.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found that there were no recorded failures of the test to meet acceptance criteria. In addition to the performance of this test, testing of similar detectors represented by procedures 76-J25 through 76-J44 (inclusive) for the past six years indicate that there were approximately 2900 successful individual detector tests without a single failure of the detector to respond to an actual or simulated smoke signal. Based on this extensive performance data it is acceptable to extend the frequency of the smoke detector testing to once per operating cycle.

The test procedures also include testing of the circuit supervisory function of the detection systems. Testing of this capability has been successfully performed in the past and the capability has been operational over a long period of time as these tests demonstrate. For a failure of this capability to have an impact on the plant, an additional failure would have to occur (i.e. circuit failure) and a fire would have to also occur. The probability of this sequence of events occurring during the time period between functional testing of the detectors (which would reveal the failures) is very small and, combined with the past operational history of the circuit supervisory function, warrants extending the testing to once per operating cycle in line with the detector functional testing.

**CONCLUSION:** Extend the smoke detector testing and circuit supervisory function testing to once per operating cycle.

ST-76J45

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - WATER SPRAY CURTAIN  
BOUNDARY NUMBER 1, Rev. 6

**PROCEDURE SCOPE:** Water spray curtain boundary number one.

**PROCEDURE FUNCTION:** To demonstrate proper operation of the heat detectors and automatic valves associated with the Water Spray Curtain Boundary Number 1.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 12 past performances of the procedure over a period of six years found that there were two "apparent failures" of the test to meet its acceptance criteria. Further review of these apparent failures indicated that neither of these instances represented actual failures of the equipment to operate. In addition to this test, the results of tests of the other water spray curtains (and stairwell spray systems) have been successfully completed over the six year period with only a single failure identified. This performance history warrants extension of the testing to once per operating cycle.

**CONCLUSION:** Extend the heat detector and system actuation testing to once per operating cycle.

ST-76J46

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - WATER SPRAY CURTAIN  
BOUNDARY NUMBER 2, Rev. 6

**PROCEDURE SCOPE:** Water spray curtain boundary number two.

**PROCEDURE FUNCTION:** To demonstrate proper operation of the heat detectors and automatic valves associated with the Water Spray Curtain Boundary Number 2.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of the procedure over a period of six years found that there were no recorded failures of the test to meet the acceptance criteria. In addition to this test, the results of tests of the other water spray curtains (and stairwell spray systems) have been successfully completed over the six year period with only a single failure identified. This performance history warrants extension of the testing to once per operating cycle.

**CONCLUSION:** Extend the heat detector and system actuation testing to once per operating cycle.

**ST-76J47**

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - WATER SPRAY CURTAIN  
BOUNDARY NUMBER 7, Rev. 5

**PROCEDURE SCOPE:** Water spray curtain boundary number seven.

**PROCEDURE FUNCTION:** To demonstrate proper operation of the heat detectors and automatic valves associated with the Water Spray Curtain Boundary Number 7.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found that there was one "apparent failure" of the test to meet the acceptance criteria. Further review of this apparent failure indicated that the problem occurred after the system had been tripped and involved resetting the valve. Thus, no failure of the detection equipment or automatic operation of the valve was involved. In addition to this test, the results of tests of the other water spray curtains (and stairwell spray systems) have been successfully completed over the six year period with only a single failure identified. This performance history warrants extension of the testing to once per operating cycle.

**CONCLUSION:** Extend the heat detector and system actuation testing to once per operating cycle.

ST-76J48

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - WATER SPRAY CURTAIN  
**BOUNDARY NUMBER 4, Rev. 5**

**PROCEDURE SCOPE:** Water spray curtain boundary number four.

**PROCEDURE FUNCTION:** To demonstrate proper operation of the heat detectors and automatic valves associated with the Water Spray Curtain Boundary Number 4.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 10 past performances of this procedure over a period of five years found that there were three "apparent failures" of the test to meet the acceptance criteria. Further review of these apparent failures indicated that one of these indicated a potential failure of the equipment to perform its design function. In addition to this test, the results of tests of the other water spray curtains (and stairwell spray systems) have been successfully completed over the six year period with only a single failure identified. This performance history warrants extension of the testing to once per operating cycle.

**CONCLUSION:** Extend the heat detector and system actuation testing to once per operating cycle.

ST-76J49

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - STAIRWELL WATER SPRAY  
BOUNDARY NUMBER 5, Rev. 5

**PROCEDURE SCOPE:** Stairwell water spray boundary number five.

**PROCEDURE FUNCTION:** To demonstrate proper operation of the heat detectors and automatic valves associated with the Stairwell Water Spray Boundary Number 5.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found there were no recorded failures of the test to meet the acceptance criteria. In addition to this test, the results of tests of the other water spray curtains (and stairwell spray systems) have been successfully completed over the six year period with only a single failure identified. This performance history warrants extension of the testing to once per operating cycle.

**CONCLUSION:** Extend the heat detector and system actuation testing to once per operating cycle.

ST-76J50

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - STAIRWELL WATER SPRAY  
BOUNDARIES NUMBER 6 AND 8, Rev. 5

**PROCEDURE SCOPE:** Stairwell water spray boundaries number six and eight.

**PROCEDURE FUNCTION:** To demonstrate proper operation of the heat detectors and automatic valves associated with the Stairwell Water Spray Boundaries Number 6 & 8.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found there were no recorded failures of the test to meet the acceptance criteria. In addition to this test, the results of tests of the other water spray curtains (and stairwell spray systems) have been successfully completed over the six year period with only a single failure identified. This performance history warrants extension of the testing to once per operating cycle.

**CONCLUSION:** Extend the heat detector and system actuation testing to once per operating cycle.

ST-76J51

**PROCEDURE TITLE:** HEAT DETECTOR FUNCTIONAL TEST - STAIRWELL WATER SPRAY  
BOUNDARY NUMBER 3, Rev. 5

**PROCEDURE SCOPE:** Stairwell water spray boundary number three.

**PROCEDURE FUNCTION:** To demonstrate proper operation of the heat detectors and automatic valves associated with the Stairwell Water Spray Boundaries Number 3.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** A review of 11 past performances of this procedure over a period of six years found there were no recorded failures of the test to meet the acceptance criteria. In addition to this test, the results of tests of the other water spray curtains (and stairwell spray systems) have been successfully completed over the six year period with only a single failure identified. This performance history warrants extension of the testing to once per operating cycle.

**CONCLUSION:** Extend the heat detector and system actuation testing to once per operating cycle.

ST-76J52

**PROCEDURE TITLE:** FIRE AREA 1E ULTRAVIOLET FLAME DETECTOR TEST, Rev. 1

**PROCEDURE SCOPE:** Fire Area 1E Ultraviolet Flame Detector

**PROCEDURE FUNCTION:** To functionally test Ultraviolet Flame Detector 76SD-457.

**CURRENT FREQUENCY:** Semi-annual

**DISCUSSION:** A review of 6 past performances of this procedure over a period of four years found that there were no recorded failures of the test to meet the acceptance criteria. Based on this performance record it is acceptable to extend the testing frequency of this procedure to once per year.

**CONCLUSION:** Based on the excellent past performance record of this equipment, it is recommended that the test frequency be extended to once per year.

**ST-76J53**

**PROCEDURE TITLE:** CONTROL ROOM BATTERY POWERED SMOKE DETECTOR TEST, Rev. 1

**PROCEDURE SCOPE:** Battery powered smoke detectors in the control room cabinets.

**PROCEDURE FUNCTION:** To demonstrate operability of Control Room battery powered smoke detectors.

**CURRENT FREQUENCY:** Semi-annual

**DISCUSSION:** A review of 7 past performances of this procedure over a period of four years found that there were two "apparent failures" of the test to meet the acceptance criteria. Further review of these apparent failures indicated that both of these were instances of failed equipment. Given the type of detectors utilized in this application (single station battery operated), and the fact that the batteries are replaced annually and tested semi-annually, this failure rate does not warrant extension of the frequency of the test.

**CONCLUSION:** The past performance of this equipment combined with the circumstances of their use, prevent the extension of the testing frequency.

**ST-76J54**

**PROCEDURE TITLE:** CONTROL ROOM BATTERY POWERED SMOKE DETECTOR BATTERY  
REPLACEMENT, Rev. 1

**PROCEDURE SCOPE:** Control Room battery powered smoke detectors

**PROCEDURE FUNCTION:** To replace batteries in Control Room battery powered smoke detectors.

**CURRENT FREQUENCY:** Annual

**DISCUSSION:** This procedure is a preventive maintenance type activity and as such performance data is not recorded. This procedure replaces the batteries as recommended by the manufacturer. No extension to the test frequency is warranted.

**CONCLUSION:** No extension of the test frequency is warranted.

**ST-76J55**

**PROCEDURE TITLE:** SOUTH EMERGENCY SWITCHGEAR ROOM CARDOX SYSTEM  
SIMULATED AUTOMATIC AND MANUAL INITIATION TEST, Rev.

**PROCEDURE SCOPE:**

**PROCEDURE FUNCTION:**

**CURRENT FREQUENCY:**

**DISCUSSION:** This procedure has been eliminated.

**CONCLUSION:**

**ST-76J56**

**PROCEDURE TITLE:** SOUTH EMERGENCY SWITCHGEAR ROOM CARDOX SYSTEM  
SIMULATED AUTOMATIC ACTUATION AND MANUAL INITIATION TEST, Rev.

**PROCEDURE SCOPE:**

**PROCEDURE FUNCTION:**

**CURRENT FREQUENCY:**

**DISCUSSION:** This procedure has been eliminated.

**CONCLUSION:**

**ST-76J57**

**PROCEDURE TITLE:** WEST ELECTRIC BAY CARDOX SYSTEM SIMULATED AUTOMATIC ACTUATION AND MANUAL INITIATION TEST, Rev.

**PROCEDURE SCOPE:**

**PROCEDURE FUNCTION:**

**CURRENT FREQUENCY:**

**DISCUSSION:** This procedure has been eliminated.

**CONCLUSION:**

**ST-76J58**

**PROCEDURE TITLE:** EAST ELECTRIC BAY CARDOX SYSTEM SIMULATED AUTOMATIC ACTUATION AND MANUAL INITIATION TEST, Rev.

**PROCEDURE SCOPE:**

**PROCEDURE FUNCTION:**

**CURRENT FREQUENCY:**

**DISCUSSION:** This procedure has been eliminated.

**CONCLUSION:**

**ST-76J59**

**PROCEDURE TITLE:** NORTH CABLE TUNNEL CARDOX SYSTEM SIMULATED AUTOMATIC ACTUATION AND MANUAL INITIATION TEST, Rev.

**PROCEDURE SCOPE:**

**PROCEDURE FUNCTION:**

**CURRENT FREQUENCY:**

**DISCUSSION:** This procedure has been eliminated.

**CONCLUSION:**

**JAMES A. FITZPATRICK  
NUCLEAR POWER PLANT**

**SURVEILLANCE FREQUENCY  
ENGINEERING EVALUATION**

**ST-76J60**

**PROCEDURE TITLE:** SOUTH CABLE TUNNEL CARDOX SYSTEM SIMULATED AUTOMATIC  
ACTUATION AND MANUAL INITIATION TEST, Rev.

**PROCEDURE SCOPE:**

**PROCEDURE FUNCTION:**

**CURRENT FREQUENCY:**

**DISCUSSION:** This procedure has been eliminated.

**CONCLUSION:**

**DECEMBER, 1997**

**PAGE 74 OF 80**

**ST-76J61**

**PROCEDURE TITLE:** CABLE SPREADING ROOM CARDOX SYSTEM SIMULATED AUTOMATIC ACTUATION AND MANUAL INITIATION TEST, Rev.

**PROCEDURE SCOPE:**

**PROCEDURE FUNCTION:**

**CURRENT FREQUENCY:**

**DISCUSSION:** This procedure has been eliminated.

**CONCLUSION:**

**ST-76K**

**PROCEDURE TITLE:** FIRE HEADER INTEGRITY AND NOZZLE INSPECTION, Rev. 4

**PROCEDURE SCOPE:** In-plant water based suppression systems and carbon dioxide systems.

**PROCEDURE FUNCTION:** To detect nozzle breakage and verify header integrity to ensure operability of the fire suppression systems in safety related areas.

**CURRENT FREQUENCY:** Once per 18 months.

**DISCUSSION:** A review of four performances of the test over the past six years indicated one "apparent failure" of the test to meet the acceptance criteria. Further review of this apparent failure indicated that no potential failure of the equipment to perform its design function was involved. This test performance represents the collective performance of approximately 26 fire protection systems. This excellent performance demonstrates the contribution of plant access and work controls and the indoctrination and training of station personnel towards enhancing the reliability of the fire protection equipment. Based on this performance, extension of this testing to once per operating cycle is warranted.

**CONCLUSION:** This testing should be extended to once per operating cycle.

**ST-76M**

**PROCEDURE TITLE:** NOZZLE AIR FLOW TEST FOR STANDBY GAS TREATMENT SYSTEM, Rev. 4

**PROCEDURE SCOPE:** Standby Gas Treatment Water Spray System A & B Trains

**PROCEDURE FUNCTION:** To ensure unrestricted flow through the nozzles of the Standby Gas Treatment Water Spray System.

**CURRENT FREQUENCY:** Once every three years

**DISCUSSION:** A review of the past two performances of this test indicated that the test failed (for both trains) during one of the tests and passed (for both trains) during the most recent test. This performance record, combined with the conditions of service (i.e. very small nozzle openings and wet/dry piping cycles) indicates that the test cannot be prudently extended at this time.

**CONCLUSION:** The systems performance do not warrant extension of the testing frequency at this time.

ST-76N

**PROCEDURE TITLE:** NOZZLE AIR FLOW TEST FOR HPCI SYSTEM, Rev. 3

**PROCEDURE SCOPE:** HPCI Water Spray System

**PROCEDURE FUNCTION:** To ensure unrestricted flow through the nozzles of the HPCI Water Spray System.

**CURRENT FREQUENCY:** Once every three years.

**DISCUSSION:** A review of the past three performances of this test indicated that there were no failures of the test acceptance criteria recorded. This performance history demonstrates that the piping system is not subject to conditions which result in the nozzle orifices becoming blocked. The HPCI and RCIC systems are located in environments that are not subject to conditions that would cause obstructions to build up in the piping or nozzles. Based on this performance, combined with the performance of the RCIC system which is similar, it is acceptable to extend this test to once every five years.

**CONCLUSION:** Extend the frequency of this test to once every five years.

**ST-76P**

**PROCEDURE TITLE:** NOZZLE AIR FLOW TEST FOR RCIC SYSTEM, Rev. 3

**PROCEDURE SCOPE:** RCIC Water Spray System

**PROCEDURE FUNCTION:** To ensure unrestricted flow through the nozzles of the RCIC Water Spray System.

**CURRENT FREQUENCY:** Once every three years

**DISCUSSION:** A review of the past three performances of the procedure indicated that there were no failures of the test acceptance criteria recorded. This performance history demonstrates that the piping system is not subject to conditions which result in the nozzle orifices becoming blocked. The HPCI and RCIC systems are located in environments that are not subject to conditions that would cause obstructions to build up in the piping or nozzles. Based on this performance, combined with the experience of the HPCI system which is similar, it is acceptable to extend this test to once every five years.

**CONCLUSION:** Extend the frequency of this test to once every five years.

**ST-76U**

**PROCEDURE TITLE:** FIRE SYSTEM FLOW TEST, Rev. 6

**PROCEDURE SCOPE:** Underground and indoor fire protection water distribution mains.

**PROCEDURE FUNCTION:** To measure the pressure drop through the high pressure fire main system to evaluate internal pipe conditions.

**CURRENT FREQUENCY:** Once every three years

**DISCUSSION:** A review of the procedure indicated that it does not contain quantified acceptance criteria. Rather, the procedure requires and relies upon the fire protection engineer's determination of the condition of the piping. The results of this evaluation were not available. The testing procedure can be extended to once per five years once the fire protection engineer has determined that unacceptable degradation of the underground is not occurring.

**CONCLUSION:** JAF should carefully consider extending the frequency of the test to every 5 years. This process should verify sufficient data has been collected to be confident that unacceptable degradation has not occurred (including the potential for adverse trends).

3.7 PLANT SYSTEMS

3.7.J Carbon Dioxide System

TRO 3.7.J           The CO<sub>2</sub> protection in the areas listed in Table T3.7.J-1 shall be OPERABLE.

APPLICABILITY:   Whenever equipment in the areas protected by the CO<sub>2</sub> system is required to function.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each CO<sub>2</sub> protected area.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable to Functions 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. -----  CO<sub>2</sub> protection inoperable.</p>	<p>A.1.1   Establish a           continuous fire           watch.</p> <p style="text-align: center;"><u>OR</u></p> <p>A.1.2.1   Ensure backup fire           suppression is           available.</p> <p style="text-align: center;"><u>AND</u></p> <p>A.1.2.2   Verify early warning           fire detection is           OPERABLE.</p> <p style="text-align: center;"><u>AND</u></p> <p>A.1.2.3   Establish an hourly           fire watch patrol.</p> <p style="text-align: center;"><u>AND</u></p> <p>A.2       Restore CO<sub>2</sub> area           protection to           OPERABLE status.</p>	<p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>14 days</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. -----NOTE----- Only applicable to Function 11. ----- CO <sub>2</sub> protection inoperable.	B.1     Ensure back-up fire suppression is available.	1 hour
	AND B.2     Restore CO <sub>2</sub> area protection to OPERABLE status.	14 days
C. Required Action A.2 or B.2 and associated Completion Time not met.	C.1     Initiate a Condition Report.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
 Refer to Table T3.7.J-1 to determine which TRSs apply for each area.  
 -----

SURVEILLANCE	FREQUENCY
TRS 3.7.J.1     Verify CO <sub>2</sub> storage unit pressure is > 280 psig.	7 days
TRS 3.7.J.2     Verify CO <sub>2</sub> storage unit level is > 45 % of capacity.	7 days
TRS 3.7.J.3     Perform CHANNEL CALIBRATION of each CO <sub>2</sub> storage unit pressure instrument.	12 months
TRS 3.7.J.4     Perform CHANNEL CALIBRATION of each CO <sub>2</sub> storage unit level instrument.	12 months
TRS 3.7.J.5     Perform visual inspection of each CO <sub>2</sub> header and nozzle.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
TRS 3.7.J.6	Perform functional test of each early warning device.	24 months
TRS 3.7.J.7	Perform simulated automatic and manual initiation test, including actuation of system valves and associated dampers.	24 months
TRS 3.7.J.8	Perform manual initiation test, including actuation of system valves and associated ventilation dampers.	24 months
TRS 3.7.J.9	Perform hydrostatic test of hose assembly for the CO <sub>2</sub> hose station.	5 years

Table T3.7.J-1 (page 1 of 2)  
Carbon Dioxide Protected Areas

AREA (a)	CO <sub>2</sub> SOURCE	EARLY WARNING FIRE DETECTION (b)	INITIATING DEVICE	INITIATION	SURVEILLANCE REQUIREMENTS
1. 10 Ton CO <sub>2</sub> Storage Unit Level and Pressure	NA	NA	NA	NA	TRS 3.7.J.1 TRS 3.7.J.2 TRS 3.7.J.3 TRS 3.7.J.4
2. 3 Ton CO <sub>2</sub> Storage Unit Level and Pressure	NA	NA	NA	NA	TRS 3.7.J.1 TRS 3.7.J.2 TRS 3.7.J.3 TRS 3.7.J.4
3. Cable Spreading Room	10 Ton Unit	Ionization Device	Electric Heat Activated Device	Automatic/ Manual	TRS 3.7.J.5 TRS 3.7.J.6 TRS 3.7.J.7
4. Relay Room	10 Ton Unit	Ionization Device Heat Activated Device	NA	Manual	TRS 3.7.J.5 TRS 3.7.J.6 TRS 3.7.J.8
5. Relay Room to Reactor Building Cable Tunnel--South	10 Ton Unit	Ionization Device	Electric Heat Activated Device	Automatic/ Manual	TRS 3.7.J.5 TRS 3.7.J.6 TRS 3.7.J.7
6. Relay Room to Reactor Building Cable Tunnel--North	10 Ton Unit	Ionization Device	Electric Heat Activated Device	Automatic/ Manual	TRS 3.7.J.5 TRS 3.7.J.6 TRS 3.7.J.7
7. Switchgear Room--West	10 Ton Unit	Ionization Device	Electric Heat Activated Device	Automatic/ Manual	TRS 3.7.J.5 TRS 3.7.J.6 TRS 3.7.J.7
8. Switchgear Room--East	10 Ton Unit	Ionization Device	Electric Heat Activated Device	Automatic/ Manual	TRS 3.7.J.5 TRS 3.7.J.6 TRS 3.7.J.7
9. Diesel Generator Switchgear Room--South	3 Ton Unit	Ionization Device	Electric Heat Activated Device	Automatic/ Manual	TRS 3.7.J.5 TRS 3.7.J.6 TRS 3.7.J.7
10. Diesel Generator Switchgear Room--North	3 Ton Unit	Ionization Device	Electric Heat Activated Device	Automatic/ Manual	TRS 3.7.J.5 TRS 3.7.J.6 TRS 3.7.J.7

(continued)

- (a) All areas are also protected by fire hoses and portable dry and/or CO<sub>2</sub> fire extinguishers.  
 (b) Early warning fire detection devices initiate alarms only and do not result in fire system actuation.

Table T3.7.J-1 (page 2 of 2)  
Carbon Dioxide Protected Areas

AREA <sup>(a)</sup>	CO <sub>2</sub> SOURCE	EARLY WARNING FIRE DETECTION <sup>(b)</sup>	INITIATING DEVICE	INITIATION	SURVEILLANCE REQUIREMENTS
11 Turbine Building 300' Elev. South Hose Reel	10 Ton Unit	NA	NA	Manual	TRS 3.7.J.9

- (a) All areas are also protected by fire hoses and portable dry and/or CO<sub>2</sub> fire extinguishers.
- (b) Early warning fire detection devices initiate alarms only and do not result in fire system actuation.