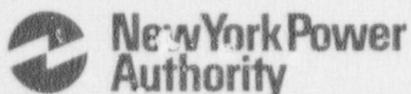


James A. FitzPatrick
Nuclear Power Plant
P.O. Box 41
Lycoming, New York 13093
315 342.3840



Radford J. Converse
Resident Manager

January 4, 1988
JAFP 88-0004

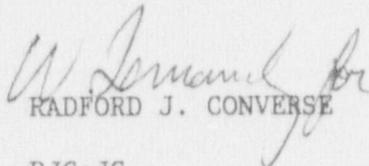
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Subject: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
Annual Summary of Changes, Tests, and
Experiments for 1986

Dear Sir:

Enclosed is a summary of changes, tests, and experiments implemented at the James A. FitzPatrick Nuclear Power Plant during 1986. This summary is submitted to comply with the requirement of 10 CFR 50.59.

Very truly yours,


RADFORD J. CONVERSE

RJC:JG
Enclosure

CC: U. S. Nuclear Regulatory Commission
Region 1
631 Park Avenue
King of Prussia, PA 19406

Mr. Harvey Abelson
Project Directorate I-1
Division of Reactor Projects - I/II
U. S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, MD 20014

NRC Resident Inspector
W. Fernandez
V. Walz

J. Gray: WPO
WPO Records Center

CERTIFIED NO:
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1. JAF-SE-85-036, Modification F1-81-043

This modification involved the replacement of the filter demineralizer D-4B (R. P. Adams Filter) with a Vacco Backflushable Etched Disc Filter to reduce the amount of radioactive resin waste generated. The installation of this modification did not affect the function of either the fuel pool cooling and cleanup system or the liquid radioactive waste system. This modification was reviewed against the criteria of Regulatory Guide 1.143 and 1.21 and Standard Review Plan Sections 11.2, 11.3, 11.4 and 11.5 and found to be in accordance with all applicable sections.

2. JAF-SE-85-060, Modification F1-75-253

This modification involved the addition of a holding pump to each loop of the Residual Heat Removal (RHR) system to maintain the discharge piping full of water and to preclude any possibility of "water hammer". The new piping and holding pumps are classified Seismic Class I. The revised design is consistent with the original qualification and technical requirements of the RHR system and did not affect the assumptions and conclusions stated in the FSAR nor involve a change to the Technical Specifications.

3. JAF-SE-85-094, Modification F1-85-040

This modification involved the installation of three-hour rated fire barriers in several areas of the plant to meet the requirements of 10 CFR 50 Appendix R. The barriers consisted of Pyrocrete 241, Portland cement, and/or U.L. rated rigid board as applicable installed on existing building structural steel. Calculations showed that no unresolved safety questions concerning the additional weight of the barrier materials were created.

Due to the minor scope of the modification, installation precautions, and administrative controls, the modification installation does not result in an unreviewed safety question.

4. JAF-SE-85-101, Modification M1-85-043

This modification consisted of replacing High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) turbine hydraulic actuators. The original actuators were of commercial grade and have been replaced by hydraulic actuators designed for nuclear application. The new actuators have radiation resistant electrical coil/wire materials and a standpipe to bathe the electrical coil in oil to prevent rust. To improve actuator performance, larger pilot valves have been installed in the new actuators. This modification enhances the ability of both the HPCI and RCIC systems to meet their design requirements and improve safety.

5. JAF-SE-85-110 & JAF-SE-85-156 , Modification F1-84-099

This modification consisted of relocating the Secondary Alarm Station (SAS) Panel from the Control Room to the Secondary Access Building. This modification was necessary because of the shortage of available space in the Control Room resulting from the EPIC modification. During the relocation of the SAS panel, the Central Alarm Station (CAS) panel, located in the Security Building, was fully operational. By routing all necessary wiring to the Secondary Access Building prior to disconnection of the SAS panel in the Control Room, the down time for the SAS panel was minimized. A review of the FitzPatrick Site Emergency Plan was performed addressing the habitability of the Secondary Access Building during a radiological event and no upgrading of the building was required. Safety Evaluation JAF-SE-85-156 covered the preoperational testing of the relocated SAS panel.

6. JAF-SE-85-115, Modification F1-85-040

This safety evaluation is essentially identical to SE-85-094 and merely expanded the scope of the modification to fireproof additional areas of the plant.

7. JAF-SE-85-118, Rev. 2, Modification F1-84-041

This safety evaluation described the second level of under-voltage protection modification. The modification of the emergency AC power system involved the following changes to the 4160 VAC emergency buses 10500 and 10600:

1. Addition of test devices, and status indicators to, and rewiring of auxiliary relays of the existing loss of voltage protection. In the event of a loss of off-site power, when the normal supply is unavailable, this modification will automatically initiate transfer of the emergency 4160 V buses to the emergency diesel generator system.
2. Addition of two channel degraded voltage protection, including voltage relays, timers, auxiliary relays, test devices, alarms, and status indicators. In the event of a sustained voltage level below the operating capability of the safety-related loads connected to these buses but above the setting of the loss-of-voltage protection setpoint, this modification will automatically initiate transfer of the emergency AC power system to the on-site emergency diesel generator system.
3. Modify logic to prevent load shedding of 4160 V emergency bus motor loads when on-site emergency diesel generators are supplying power to the bus.

4. Adjust the primary taps of the reserve station transformers (71-T-2&3) to increase emergency bus voltage to a nominal value of 4160 volts.

Revision 2 of the safety evaluation changed the method by which the modification would be disabled prior to the issuance of the necessary technical specification changes.

8. JAF-SE-85-121, Modification Fl-84-041

This safety evaluation supported the preoperational testing of the second level of under-voltage protection modification. The test procedure is based upon and incorporates the existing Operations Surveillance Test Procedure F-ST-9C. The preoperational test procedure provides for testing of the loss of voltage relays and the new degraded voltage relays, as well as the emergency AC power system.

The test procedure also requires the operating emergency diesel generators to be tripped while carrying their designated loads to verify proper operation as follows: 4KV motor breakers trip, emergency diesel generators automatically restart when the trip condition is reset, diesel generator breakers close, the emergency load breakers sequentially close and the emergency diesel generators operate until both generators are at steady state temperature conditions while loaded with the emergency loads.

This test is performed during a cold shutdown condition. The RHR and Core Spray systems are initially aligned in the standby mode and then, prior to test, are lined up to recirculate water to the suppression pool. This preoperational test does not change the result of the accident analysis or reduce the margin of safety.

9. JAF-SE-85-122, Modification Fl-82-073

This modification consisted of the installation of a third data acquisition panel (DAP-3) which will transmit 14 digital signals and 13 analog, signals from the FitzPatrick switchyard to Niagara Mohawk Co.'s Energy Management System. The digital signals will monitor circuit breaker and motor operated disconnect switch positions and the analog signals will monitor transmission line power flows (watts and vars) and voltage.

The DAP-3 panel is located in the Relay Room. The floor loading has been analysed and found acceptable. The panel is seismically designed to remain intact during a safe shutdown, earthquake and will not degrade any adjacent safety related equipment. Implementation of this modification does not constitute an unreviewed safety question.

10. JAF-SE-85-146, Modification M1-85-084

This minor modification involved repairing the support anchorage for the Standby Liquid Control System test tank to return it to its original design condition. This was accomplished by installing a new anchor bolt into the reinforced concrete floor and constructing a new metallic, grout pad under the northeast leg of the test tank. The replacement anchor bolt has a greater allowable loading capacity than the original and was installed in accordance with IS-S-02, Installation and Inspection of Concrete Expansion Anchors and verified for proper installation by Quality Control. Additionally, the grout pad was installed in accordance with the manufacturer's requirements. The test tank is designed as a Seismic Class II component in accordance with FSAR Section 3.9.4.

11. JAF-SE-85-148, Modification F1-82-026

This modification involved the installation of Interim Radwaste Storage Facility Communications and Fire Alarm Cables. This installation involved the tie-in of a Gaitronics Plant paging system communications cable and fire alarm (telephone) cable into the Radwaste Building.

This modification will provide the Main Control Room personnel with capability to be informed and to respond to a fire in the Interim Radwaste Storage Building. Also, it will provide a method of communication with personnel who are performing work in the new building.

The fire alarm cable and Gaitronics cable tie-ins are considered to be Q.A. Category III, performing no safety related functions. This modification does not affect any safety-related systems.

12. JAF-SE-85-149, Modification M1-85-089

This minor modification entailed the installation of a two step cartridge demineralizer and rental equipment in the Turbine Building Closed Loop Cooling System (TBCLC). This temporary modification has returned the chemistry in the TBCLC system to equal or better quality than is required by plant administrative procedures. The design criteria for the temporary piping is consistent with the design criteria for the TBCLC system. The installation of this modification will not result in any change to the assumptions used in the FSAR or other safety analysis reports. The temporary change does not perform a safety-related function and does not affect any safety-related system.

13. JAF-SE-85-150, Temporary Change to PASS Operating Procedure PSP-17, Rev. 5

This safety evaluation addressed a temporary change to PASS Operating Procedure (PSP-17) to allow testing of the capability of the GE-PASS system to withstand a loss of cooling from the Reactor Building Closed Loop Cooling (RBCLC) system. This change allowed cooling water to the sample cooler to be shut off and flows and temperatures to be monitored to determine if internal PASS temperatures will remain below design values during loss of cooling.

14. JAF-SE-85-153, Modification Fl-86-007

This modification entailed the design and installation of six supports on the 1/2 inch diameter seal water supply tubing to the Reactor Water Cleanup (RWCU) Pumps 12P-1A,B. Three supports were installed on each pipe. The new tubing supports were designed in accordance with EDP-15 and installed in compliance with IS-S-01.

The portion of tubing being supported is field run QA Category II, non-seismic. This modification does not constitute an unreviewed safety question.

15. JAF-SE-85-157 Rev. 1, Modification M1-85-98

This modification consisted of replacing the Main Steam Leakage Collection System (MSLCS) drain header pressure switches with switches that are environmentally qualified in accordance with NUREG 0588 and IEEE Standards 323-1974 and 344-1975. This modification does not affect MSLCS's ability to collect and process all postulated leakage from main steam isolation valves and does not affect safety.

16. JAF-SE-85-158, Rev. 1, Heavy Load Analysis

This safety evaluation addressed the lift of the auxiliary hoist drum of the Reactor Building crane from the trolley (411'-0" elevation) to the refuel floor (369'-6" elevation). The combined weight of the hoist drum and gear is 4000 lbs. The NUREG-0612 "Heavy Load" analysis for the Reactor Building crane main hoist block and hook, weight 6200 lbs., concluded that no unacceptable consequences would result. Since the hoist drum drop is bounded by the load block and hook analysis, it was concluded that the hoist drum lift can be performed without risk to safety related equipment.

17. JAF-SE-85-159, Modification F1-85-018

The eight inch manifold attached to the north side of condenser E at 257'-4 3/8" elevation, and eight 1 1/2" and four 1" attached Reactor Feedwater Pump Turbine drain pipe lines were modified. The scope of the modification included a change of materials, revised pipe supports, and elimination of strainers.

This modification will not affect or change the FSAR or Technical Specifications. The removal and installation for this modification will not impact or affect any safety related components and does not constitute an unreviewed safety question.

18. JAF-SE-85-161, Modification F1-85-071

This modification involved the addition of a branch decontamination connection line to the "B" RHR Service water Piping. The addition of a permanent decontamination connection was of sufficient size to permit the installation of hydrolase hose through it. This connection permits hydrolasing and eliminates the need for lead shielding blankets, thus reducing personnel radiation exposure (ALARA) and improving the appearance and access through the area. Design and installation of this modification was reviewed against existing plant design criteria and found to be in accordance with all applicable sections. No unreviewed safety question pursuant to 10 CFR 50.59 has been presented by this modification.

19. JAF-SE-86-001, Modification M1-85-082

This modification involved the replacement of various Low Pressure Coolant Injection (LPCI) independent power supply charger-inverter electronic sub-components with upgraded components. These replacements were performed as part of a planned preventive maintenance program to provide for increased reliability and availability of the LPCI Independent Power Supply System as described in FSAR Section 8.10. These sub-components are consistent with the environmental qualification requirements for the subject equipment. The original equipment vendor concurred with these substitutions.

20. JAF-SE-86-002, Modification F1-85-074

This modification installed nine replacement and two new fire dampers in plant ventilation systems. These dampers are to provide three hour separation between fire zones in accordance with 10 CFR 50, Appendix J. These ventilation systems have no safety function in response to design basis accidents. Failure of these dampers will have no impact on safety. The replacement changes are at least equivalent in every respect to existing dampers. They are superior in that they are a full three hour rated. This modification does not constitute an unreviewed safety question.

21. JAF-SE-86-003 Rev. 1, Modification Fl-85-010

This modification replaced the drywell floor and equipment drain sump level monitoring instrumentation. The new system is a direct electronic admittance system consisting of a sensing element coupled to a transmitter (located outside the drywell). The transmitter imposes a signal between the sensing element and ground and a bridge amplifier measures the admittance (resistive and capacitive current) of the sensing element.

The following design bases were reviewed to determine if the drywell sump level monitoring system would have an adverse affect on plant safety; Cable separation, Seismic conduit and equipment support design, Cable routing, Installation during normal plant operation, Applicable design criteria.

Revision 2 changed the portion of the safety evaluation which discussed the review of Technical Specifications. The assumptions and conditions found within the Technical Specifications will not be affected by the installation of this modification.

22. JAF-SE-86-004, Modification Fl-85-076

This modification added a globe valve (VOS-60) and a flow indicator near the outlet of the off-gas cooling water chillers (01-1C7-11A & B). Controlling the cooling water flow through the chillers effectively controls the moisture content of the off-gas and improves the efficiency of the activated charcoal noble gas filters.

This modification will not affect or change the FSAR or Technical Specifications and does not constitute an unreviewed safety question.

23. JAF-SE-86-007, SF6 Condenser Cooling Water Level Detection Test

This test was performed to demonstrate the operation and reliability of the SF6 cooling water leak detection system which is used to detect small cooling water leaks into the main condenser. This test does not result in any adverse effects on the reactor or related equipment. The installation necessary for this test was easily accomplished without affecting any safety-related components.

24. JAF-SE-86-008, Modification M1-86-004

This modification to the Security Building consisted of mounting a steel railing to the existing aluminium frame covering the plexiglass area between and above the turnstile and to add expanded metal or fence above the ceiling tile to prevent unauthorized entry into the security area. This modification involved a non-safety related change.

25. JAF-SE-86-013, Modification M1-85-060

This modification consisted of relocating differential pressure switches and pressure gauges from the side of the service water system strainers to independent foundations. These structural steel foundations were installed adjacent to the present locations of the instruments to minimize changes in turbine and electrical cable and conduit. The previous instrument mounting caused vibrations in instruments and intermittent trips and the new foundations will eliminate vibrations. This modification does not affect any safety related components.

26. JAF-SE-86-014 & JAF-SE-86-026 Minor Modification M1-85-085

This modification involved the replacement of the motor operators for the Recirculation System discharge and discharge bypass valves (02MOV-53A,B & 54-A,B). This modification was installed to upgrade the old equipment with components that have the same function and equal to or better design specifications. The old valve operators used a motor brake system that required excessive maintenance. The newly installed valve operator eliminates the need for a motor brake resulting in reduced maintenance. The new equipment will improve valve operator performance and simplify maintenance and spare parts requirements.

The new equipment is environmentally qualified to Class 1 (EH) as defined in NUREG-0588 which is an upgrade in qualification level of the replaced equipment. Limitorque Corporation has performed an engineering review and has certified that the replacement equipment meet all design criteria and functional requirements of the original equipment. The new operators are qualified in accordance with IEEE Standards 323-1974, 382-1972, and 344-1975 resulting in an upgraded qualification status as compared to the original equipment. No unreviewed safety question pursuant to 10 CFR 50.59 has been presented by this modification.

Safety Evaluation JAF-SE-86-026 involved the evaluation for the lifting of the recirculation pump discharge isolation valve operators from the 268' elevation floor. These lifts were necessary to replace the old valve operators with new ones. The safety concern of this evaluation results from the potential for damaging safety-related equipment should the heavy load be dropped. A control of heavy loads handling analysis was performed for lifting of the valve operators. The results of this evaluation concluded that lifting of the valve operators meet all of the requirements of NUREG-0612. No unreviewed safety question pursuant to 10 CFR 50.59 has been presented by this evaluation.

27. JAF-SE-86-018, Minor Modification M1-86-024

This modification involved the inspection and resolution of potential deficiencies in the Environmental Qualification (EQ) of Limitorque Motor Valve Operators. The inspection and upgrade, if necessary, included internal control wires and jumpers; torque and limit switches; and motor tee drains. This modification was necessary to satisfy the requirements of EQ level upgrades to NUREG-0588, Cat. I, and provide a timely resolution to qualification issues raised by the NRC (I&E Notice 86-03). No unreviewed safety questions pursuant to 10 CFR 50.59 has been presented by this modification.

28. JAF-SE-86-019, Modification M1-86-025

This modification consisted of replacing existing 1/4" globe priming valves with 1/4" ball valves. These priming valves provide isolation for the water supply used to reset the fire protection system deluge valves after actuation. This modification was made because the manufacturer of deluge valves has replaced the globe valves with ball valves in their deluge trim packages. The ball valves provide shutoff capability equal to the globe valves but weigh less due to their smaller size. This modification involves a non-safety related change.

29. JAF-SE-86-022, Modification M1-86-026

The existing control rod drives (CRD) mechanisms were replaced with those of an improved design, General Electric Model No. 7RDB144G006. The improved CRD assemblies have been evaluated by the original NSSS supplier (GE) and the plant staff, and have been determined to be equal to or better than the originally supplied equipment in fit and function. No safety or licensing concerns are presented by the replacements, nor are any changes to the Technical Specifications required. The modification does not constitute an unreviewed safety question.

30. JAF-SE-86-024, Modification F1-84-097

This modification consisted of the expansion and upgrading of the Control Room Kitchen and the installation of personnel access barriers at three locations around the Control Room console perimeter. The kitchen expansion more than doubled the size of the kitchen allowing sufficient seating to eliminate eating in the Control Room or Work Control Center. These personnel access barriers provide the Shift Supervisor with control over the entry of plant personnel into the control room console area. The structural design requirements of the kitchen expansion are in accordance with FSAR Section 12.4. The Fire Protection piping and pipe supports affected by this modification were designed and constructed to QA Category M and Seismic Class I requirements as required in FSAR Section 9.8. The personnel access barriers were designed and constructed to QA Category III and Seismic Class II requirements.

31. JAF-SE-86-027 Rev. 1, Modification F1-82-084

This modification consisted of adding four new horizontal restraints and modifying two existing restraints on two radwaste system lines. The additional restraints and upgrading of existing restraints will reduce pipe displacements to an acceptable level. The piping involved is QA Category II, non-safety related. Calculations were performed on all restraints involved in this modification in accordance with the AISC Manual of Steel Configuration, 8th Edition. Fabrication, installation and documentation were in accordance with JAF Installation Specification IS-S-04.

32. JAF-SE-86-028, Temporary Jumper

This change was required to supply temporary power from Bus 133100 to two breakers on Bus 125200 due to maintenance work on the 10500 Bus. This temporary change supplied power to the "A" RPS bus while in cold shutdown to prevent a constant half scram condition that would otherwise result. This change did not affect the RPS MG Set and the RPS bus remained adequately protected. This change also supplied power to the "A" 125 volt battery charger and prevented discharge of the "A" battery. Class 1E breakers provided adequate protection for the battery system.

33. JAF-SE-86-029 Test POT-20M

This test verified the operability of the Drywell sump level instrumentation system installed by modification F1-85-010 (SE-86-003). The test included a wiring termination verification, complete system calibration, a non-automatic system functional test and an integrated automatic system functional test. The FSAR and Technical Specifications have been reviewed and their assumptions and conclusions are not changed by the performance of this test.

34. JAF-SE-86-030, Justification for Continued Operation

Radioactive analysis of the operating auxiliary boiler water on March 14, 1986 showed concentrations of radioactive materials requiring that the boiler system be declared contaminated. Corrective action was taken to decontaminate the boiler. This safety evaluation demonstrated that no unreviewed question existed at the given concentrations of radioactive materials and continued operation of the boiler was acceptable while decontamination was in progress.

35. JAF-SE-86-031, Minor Modification M1-86-031

This modification involved changing resistors in the microprocessor assembly for H2/O2 Analyzer Hydrogen Sensor Offset Voltage. This also included revising the wiring connections on the analog input board and reset processor as well as adding Metal Oxide Varistors to protect the board from damage due to power spikes. The replacement components meet all design criteria and functional requirements of the original equipment. This modification did not affect the design basis in the Final Safety Analysis Report or result in changes to the Technical Specifications. No unreviewed safety question pursuant to 10 CFR 50.59 has been presented by this modification.

36. JAF-SE-86-034, Modification F1-86-033

This modification involved the replacement of Residual Heat Removal System (RHR) pump discharge pressure switches, 10PS-120A,B,C,D,E,F,G & H, with new pressure switches. The replacement switches were procured from the original supplier (General Electric) and have maintained the component numbers of the old switches. All setpoints for the new switches are unchanged.

General Electric has performed an engineering review and has certified that the replacement switches meet all design criteria and functional requirements of the original equipment. The Technical Services Department has determined that the new switches are environmentally qualified for the applicable postulated conditions at the FitzPatrick plant. No unreviewed safety question pursuant to 10 CFR 50.59 has been presented by this modification.

37. JAF-SE-86-035, Justification for Continued Operation

Radioactive analysis of the operating auxiliary boiler water on March 29, 1986 showed concentrations of radioactive materials requiring that the boiler system be declared contaminated. Corrective action was taken to decontaminate the boiler. This safety evaluation demonstrated that no unreviewed question existed at the given concentrations of radioactive materials and continued operation of the boiler was acceptable while decontamination was in progress.

38. JAF-SE-86-036, Modification F1-86-018

This modification replaced the two condensate sample pumps (33-P-23A,B). These pumps provide a continuous sample of condensate by taking suction from the 36" condensate suction lines and discharge to the secondary water chemistry sample panel for laboratory analysis.

The subject pumps and associated piping are classified as non-seismic, non-safety related, QC class III. Plant safety, reliability, and operation are not affected by the modification. The modification does not constitute an unreviewed safety question.

39. JAF-SE-86-054, Modification F1-86-042

This modification consisted of providing seismically designed supports for a junction box and conduit which were previously mounted on the non-seismic Torus Room catwalk handrail. The cable provides power to a QA Category 1 component and requires Seismic Class 1 support for the cable. The new seismic supports and support locations were designed, in accordance with the requirements of Site Engineering and Design Procedures. Implementation of this modification was accomplished without system isolation during normal plant operation.

40. JAF-SE-86-055, Minor Modification M1-86-038

This modification involved the temporary replacement of differential pressure transmitter (Mensor) 16-1DPIT-101 with a combination Rosemount pressure transmitter, Foxboro current to voltage converter and resistive network. The Mensor pressure transmitter was removed for repair and calibrations. The temporary replacement equipment meets all design criteria and functional requirements of the original equipment. All setpoints for the temporary equipment were unchanged. No unreviewed safety question pursuant to 10 CFR 50.59 has been presented by this modification.

41. JAF-SE-86-056, Modification Fl-86-037

This modification consisted of replacing a 1-1/2 inch cross-tie piping connection, from the Spent Resin Tank Discharge to the Concentrated Waste Pump, with a new 2 inch piping configuration. This modification was necessary for continual spent resin operation, since the old piping connection was repeatedly getting clogged and required frequent maintenance. This caused excessive man-rem exposure for maintenance and delays in radioactive waste shipping.

The new piping configuration has eliminated sharp bends and constrictions. This will provide for a smoother transition for the resin slurry transport and thus eliminate flow discontinuity. Also, less maintenance, as a result of this modification, is required thereby reducing the total man-rem exposure (ALARA).

This modification was reviewed against the criteria of all applicable Regulatory Guides and Standard Review Plan, and found to be in accordance with all applicable sections. The new piping does not perform a safety-related function nor will this modification affect any safety-related systems. This modification will not conflict with the design basis of the Liquid and Solid Radwaste System as stated in the Final Safety Analysis Report or result in changes to the Technical Specifications.

42. JAF-SE-86-058, Modification M1-86-046

This modification consisted of revising the setpoints of the condensate storage tank (CST) level to less than 28'0" (high) and greater than 19'6" (low). The previous setpoints were greater than 28'0" (high) and less than 16'0" (low). The suction nozzles for the core spray and CRD systems are at 18'6" above the bottom of CST. It is desirable to maintain level above those suction nozzles to provide for proper operator action prior to losing CST suction. The upper set point change provides more margin than the previous design. This modification does not have any adverse affect on plant operations or safety.

43. JAF-SE-86-059, Modification Fl-86-030

Fire damper 66-FD-9 was installed in the ventilation supply air duct serving the crescent area of the reactor building. The damper separates two fire zones should a fire exist in either zone. Under certain operating conditions, air flow through the duct and damper is excessive, preventing the damper from closing completely. This modification installed a flow interrupting damper in this duct to stop air flow should the fire damper be required to close. The flow interrupting damper closes at a lower temperature than the fire damper, assuring the proper operation of the fire damper.

The portion of ventilation system where the flow interrupter was installed is not vital, and spurious actuation will not adversely affect safe shutdown capability of the plant. The modification will not affect the seismic design of the duct work system. The modification has no impact on the FSAR and Technical Specifications and does not constitute an unreviewed safety question.

44. JAF-SE-86-061, Heavy Load Analysis

This safety evaluation covered the lifting of the main steam tunnel shield plugs on the 300'-0" elevation by the M-G Set Room Crane during plant operation. The purpose of this lift is to provide quick access to the outboard main steam isolation valves and the outboard feedwater check valves. This access path reduces the exposure of personnel to high energy gamma radiation associated with the main steam line. No safety-related equipment is located above the 300'-0" elevation floor in close proximity to the load. This potential heavy load drop was evaluated against the criteria outlined in NUREG 0612 and found to be acceptable.

45. JAF-SE-86-066, Modification M1-86-056

This modification consisted of replacing the viscous type dampers for the emergency diesel generator crank-shaft with gear type dampers. The gear type dampers enhance equipment reliability. The new dampers have a replacement frequency of 2 years or 72,000 hours whichever occurs first as compared to 6 years or 48,000 hours for the existing dampers. This modification would enhance equipment reliability and does not reduce safety.

46. JAF-SE-86-067, Modification M1-86-068

This modification consisted of replacing the liquid drainer for the off-gas sample chamber condensate pot. This drainer separates the condensate from the gas before the off-gas sample chamber to improve condenser air ejector off-gas radiation monitoring in the sample chamber. The amount of condensate flowing into the liquid drainer exceeds the capacity of the drainer and the replacement drainer will be capable of handling the total flow. This modification does not affect any safety related components.

47. JAF-SE-86-069 Rev. 1, Modification M1-86-057

This modification plugged an abandoned duct opening in the concrete wall separating the redundant Battery Charger rooms to provide a three hour fire barrier as required by 10 CFR 50, Appendix R. This modification does not constitute an unreviewed safety question.

48. JAF-SE-86-070, Minor Modification M1-86-059

This modification involved the replacement of the Reactor Building Closed Loop Cooling Water (RBCLCW) pump discharge header pressure switches 15-PS-122A-D with new ones. This modification was necessary because of leakage in the old switches. The replacement switches are environmentally qualified and meet all design criteria and functional requirements of the original equipment. All setpoints for the new switches are unchanged. No unreviewed safety question pursuant to 10 CFR 50.59 has been presented by this modification.

49. JAF-SE-86-071, Modification F1-85-074

A total of six previously installed fire dampers were not designed to close against air flow and require replacement or modification in place. This modification upgraded these six fire dampers to meet the requirements of 10 CFR 50, Appendix R. Implementation of this modification enhances the integrity of the fire barriers in the Control Room and Administration Building and does not adversely effect the existing three hour rating of the barriers. These dampers are not addressed in the FSAR or the technical Specifications and no changes to the assumptions used in the FSAR or other safety analysis reports will result.

50. JAF-SE-86-073, Minor Modification M1-86-021

This modification consisted of replacing circuit boards, adding pressure transducers and electrical components, in the Off Gas System H2 Analyzers, to compensate for pressure variations. This modification has improved the reliability and accuracy of the system by providing a correction (automatic signal conversions) for hydrogen indications system pressures. Prior to this modification, the system provided indications that were nonconservative. This modification has increased the confidence level for the indication of actual hydrogen concentration level values. The replacement components meet all design criteria and functional requirements of the original equipment. This modification did not affect the design basis in the Final Safety Analysis Report or result in changes to the Technical Specifications. No unreviewed safety question pursuant to 10 CFR 50.59 has been presented by this modification.

51. JAF-SE-86-074, Modification M1-86-066

This modification consisted of replacing the carbon steel pressure regulating lines for the station air compressors with stainless steel lines. This change precludes the effects of corrosion. The two carbon steel manual isolation valves in each line were replaced with stainless steel valves. This modification involved non-safety related components.

52. JAF-SE-86-099, Modification F1-86-040

This modification involved three changes in the Control Room Emergency Ventilation system as follows:

1. Changed alarm setpoints of four differential pressure switches.
2. Replaced these four differential pressure switches with higher range instruments to provide the required range for the new setpoints. Replaced differential pressure gages to provide accurate readings for the two frames of charcoal filters located in series in each filter train.
3. Installed a differential pressure indicator for the common outlet duct that will measure flow pressure to determine total volume of air flow. The gage was connected to an existing flow element.

The previous alarm setpoints for the four differential pressure switches were in accordance with the original purchase specification. However, due to the addition of a second charcoal filter just prior to initial plant startup, normal operation resulted in system alarms. The filter train supplier's technical manual permits higher pressure drops than the previous setpoint before recommended filter changeout. The new setpoints are greater than the previous setpoints, but equal to or less than the vendor specification.

The Control Room Emergency Ventilation system did not have permanently installed instrumentation for monitoring air flow during testing. A permanent instrument was installed in the discharge duct to provide a means for monitoring system air flow and to verify system design air flow.

This modification installed instrumentation to reflect the as-built condition of the plant and to provide indications of system performance. This modification does not constitute an unreviewed safety question.

53. JAF-SE-86-100, Modification F1-86-067

This modification consisted of installing a 3" check valve in the service air line in the Turbine Building. The check valve is of the soft seat style to ensure zero or minimal leakage of contaminated fluid into the service air system. Installation of this valve eliminates backflow of any contaminated fluid into the service air system. This modification involved a non-safety related component.

54. JAF-SE-86-101, Minor Modification M1-86-54

This modification involved changing the setpoint on the condensate storage tank pressure switch (33-PS-101) from 12.1 psig to 13.0 psig. The original instrument calibration report shows the setpoint for this switch to be 12.1 psig. At this setpoint (12.1 psig), it was not possible to transfer water from the sample tanks due to air operated valves (20AOV-141A/B) remaining closed. The reason for this was that the normal water level often exceeded the corresponding set pressure at pressure switch 33-PS-101. Pressure switch 33-PS-101 was set to correspond to the high level alarm setpoint 33-LS-101 of 283'-0". This corresponds to a pressure output from 33-E/F-101 of 13 psig. The setpoint change is consistent with a previous setpoint change made under modification M1-86-046 for the condensate storage tank level alarms. No unreviewed safety question pursuant to 10 CFR 50.59 has been presented by this modification.

55. JAF-SE-86-102, Modification M1-86-071

This modification consisted of repairing the disc on valve 10 RHR 14B by machining the damaged threads and remachining the threads on the buildup stud. This repair procedure had to be adopted because the replacement disc was not readily available. This modification involved repairs according to approved procedures and did not affect safety.

56. JAF-SE-86-104, Modification M1-86-74

This modification consisted of converting valve 42 PCV-135 in the make-up water system to a back-pressure control valve. Valve 42 PCV-135 used in the make-up water system maintains treated water pump discharge pressure. Since the pressure sensing is installed upstream of this valve, a back pressure valve is required to provide proper pressure control. This modification involved a change to a non-safety related component.

57. JAF-SE-86-120, Modification M1-86-079

This modification consisted of replacement of the head gasket for the filter used at the truck fill connections for the Containment Atmosphere Dilution System nitrogen tanks. The teflon O-ring gasket was replaced with a full face Grafoil gasket to provide a proper filter head seal. The new gasket is designed to be more reliable while allowing the filter to provide the same design function.

58. JAF-SE-86-122, Modification F1-86-008

This modification consisted of replacing the normal service water radiation monitor flow indicator and flow switch with a Picomag electromagnetic flowmeter and external relay. This modification was implemented to alleviate the build-up of algae and crud in the existing normal service water radiation monitor rotometer and flow switch. The new flowmeter and relay will eliminate the frequent maintenance that is necessary for cleaning this equipment. The replacement instrumentation will upgrade the design and reliability of the normal service water radiation monitors.

The service water radiation monitors are QA Category II, non-safety related. The replacement components meet all design requirements of the original equipment. Failure of components involved in this modification will not adversely affect the safety function of safety-related equipment. No unreviewed safety question pursuant to 10 CFR 50.59 has been presented by this modification.

59. JAF-SE-86-125, Modification F1-86-005

This modification involved the replacement of the Turbine Building Crane Hoist Speed Reduction Unit. Specifically, the trolley motor and brake was replaced with a motor reducer, a two-speed motor and a new disc brake; the five-speed control panel was replaced with a two speed control panel; and the main hoist geared limit switch was replaced. Also, a new micro-drive was added to the main hoist motor mounting brake and a micro-drive and clutch control panel was added to the existing control enclosure.

This modification was installed to reduce the trolley speed to an acceptable range for operations; and to provide a low speed control mechanism to the existing main hoist drive by the addition of a micro-drive. Installation of this modification enhances the Turbine Building Crane operations and provides a higher degree of reliability. The crane does not perform a safety-related function nor will this modification affect any safety-related systems.

60. JAF-SE-86-134, Modification Fl-86-043

This modification consisted of installing fire seals inside six 5KV non-segregated phase bus ducts penetrating fire walls. The installation of these fire seals upgrades the fire barrier walls to three hour rating in accordance with 10 CFR 50, Appendix R - Section III-G.2. This modification does not constitute an unreviewed safety question.

61. JAF-SE-86-137, Modification M1-86-049

This modification consisted of replacing the drive motor for the Control Room Air Handling units. The previously existing motor is no longer manufactured and the new motor is the replacement available from the original manufacturer. This modification involved the replacement of the existing motor with an equal or better motor and does not affect the operation or safety of the system.

62. JAF-SE-86-140, Modification M1-86-100

This modification consisted of replacing the limitorque actuator motor for valve 23 MOV-58 which had failed. An exact replacement was not available and replacement motor with the same frame size, mounting dimensions and electrical characteristics but with a higher minimum torque rating was used. The increased torque rating of the replacement motor does not adversely affect valve actuator performance, since the torque transmitted to the valve stem is limited by the actuator gear design and torque switch setting which remained unchanged. This modification involved replacement of a motor with the same electrical characteristics as the existing motor and does not affect the operation or safety of the system.

63. JAF-SE-86-150, Modification M1-86-095

This modification consisted of installing a three hour rated fire barrier over an expansion joint in the wall separating the cable tunnels in the Administration building to meet the requirements of 10 CFR 50, Appendix R. This modification does not constitute an unreviewed safety question.

64. JAF-SE-86-151, Temporary Jumper

This change was required to supply temporary power from non-safety Bus 13400 to safety-related Motor Control Centers 262 and 264 to supply power to various loads required while the 10600 bus was shut down for maintenance and modification. The jumper was installed only while the reactor was in cold shutdown. Adequate circuit protection was provided with the alternate power feed scheme. With the reactor in cold shutdown and the redundant Emergency AC Power System operational, the safety objective of Section 8.6.1 of the FSAR was satisfied.

65. JAF-SE-86-160, Use of Portable Radwaste Processing System

This change entailed the use of a portable skid-mounted Radwaste Solidification System to receive liquid slurries and sludges from the plant's radwaste tanks and solidify them in process liners inside transport casks. The processing equipment and transport casks are the property of NUS Process Services, Inc. (NUSPC) and are leased to the Authority. The solidification system is operated by an NUS technician. The services of NUSPC are performed under a Quality Assurance Program in accordance with 10 CFR 50 Appendix B. The waste solidification process is performed in accordance with the vendor's Process Control Program (PCP) as required in Section 4.1 of the Radiological Effluent Technical Specifications. The bases for system design and operation are Regulatory Guides 1.143 and 8.8. The Radwaste Specification System is designed and operated to maintain radiation exposures to operating personnel as low as reasonably achievable (ALARA) and to prevent leakage of contaminated water from the system through the use of shielding and procedural controls.

66. JAF-SE-86-161, Modification M1-86-111

This modification affected the reactor feed pump minimum flow bypass line penetration into the main condenser. The sparger piping inside the condensers was cut to remove 3 to 4 feet of unsupported piping. The piping outside the condenser was reanalyzed and resupported to reduce loads at the condenser nozzles.

The reactor feed pump recirculation lines are QA Category II, non-seismic. There is no required change to the FSAR, nor is any safety design basis altered by this change. No unreviewed safety question has been presented by this modification.

67. JAF-SE-86-163, Modification M1-86-112

This modification consisted of adding a base plate with two Hilti Kwick-Bolt Anchors to a pipe hanger on the main steam piping. The new concrete mount design substantially increases the allowable fastener capacity over the original design. The hanger was redesigned in accordance with ANSI B31.1 (1967) and AISC Manual, 8th Edition.

68. JAF-SE-86-167 Rev. 1, Modification M1-86-113

This modification consisted of replacing the limit torque actuator motor for valve 13 MOV-15 which had failed. An exact replacement was not available and replacement motor with the same frame size, mounting dimensions and electrical characteristics but with a higher minimum torque rating was used. The increased torque rating of the replacement motor does not adversely affect valve actuator performance, since the torque transmitted to the valve stem is limited by the actuator gear design and torque switch setting which remained unchanged. This modification involved replacement of a motor with the same electrical characteristics as the existing motor and does not affect the operation or safety of the system.

69. JAF-SE-86-168 Rev. 1, Modification M1-86-114

This minor modification consisted of installing seal caps on two main steam safety relief valve discharge lines due to a broken fitting on one line. A calculation was performed to confirm the adequacy of the seal plate size and thickness and to verify the adequacy of the seal weld between plate and fitting. The seal plate and weld were designed in accordance with ANSI B31.1 (1967).