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September 15, 1986
JAFP 86-0770

Dr. Thomas E. Murley, Regional Administrator
U. S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT
DOCKET NO. 50-333
ANNUAL SUMMARY OF CHANGES, TESTS, AND
EXPERIMENTS FOR 1985

Dear Sir:

Enclosed is a summary of changes, tests, and experiments implemented at the James A. FitzPatrick Nuclear Power Plant during 1985. This summary is submitted to comply with the requirement of 10 CFR 50.59.

Very truly yours,

Radford Converse
Resident Manager

Enc.
RJC:WF:fah
cc: Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attn: Mr. Daniel R. Muller, Director
BWR Project Directorate No. 2
Division of BWR Licensing

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JAF-SE-81-097, SE-84-042, SE-84-044, SE-85-139, Modification F1-79-030

Safety Evaluation JAF-SE-81-097 covered a radwaste system modification which consisted of removal of all unused concentrated waste transfer, and resin slurry lines; installation of piping to permit the transfer of concentrated waste, clean-up and waste sludge directly to the liner fill area; and rerouting of the transfer line through more remote areas of the radwaste building. This modification was necessary to 1) permit the transfer of highly contaminated sludge to the liner fill area without the use of rubber hoses; 2) obtain the flexibility required to allow the transfer of concentrated wastes and sludges between radwaste storage tanks; and 3) reroute the transfer lines from highly trafficked areas for ALARA concerns. Design and installation of this modification was in accordance with Reg. Guide 1.143, Reg. Guide 1.21, 10 CFR 20, 10 CFR 50, and 10 CFR 71.

Safety Evaluation JAF-SE-84-042 covered a partial modification which consisted of the removal of temporary sludge piping not being used. Many parts of the sludge piping, not used, were crud traps causing localized hot spots within the piping system. For ALARA concerns, much of this piping was removed without having any effect to the radwaste system. This modification is in accordance with applicable Reg. Guide 1.143. Radiological controls have been evaluated against the criteria in Reg. Guide 1.21 and Standard Review Plan 11.5. Implementation of this modification does not conflict with the design bases for the liquid radwaste system as stated in the Final Safety Analysis Report and any applicable regulatory standards.

Safety Evaluation JAF-SE-084 covered a partial modification which entailed the installation of raceways and placement of floor and wall sleeves necessary for the installation of radwaste system modifications. This modification does not conflict with the design bases for the liquid radwaste system as stated in the FSAR and with any applicable regulatory standards.

Safety Evaluation JAF-SE-85-139 covered pre-operational test (#20-K) which was conducted to demonstrate the proper functioning of the Waste Sludge Cross Tie Connection System components and circuitry prior to placing the system in operation. This test was performed to verify the system operability following the installation of modification F1-79-30.

JAF-SE-82-066, Modification F1-82-024

This modification consisted of installing two new perimeter security cameras 7 and 8 and replacement of the existing four security cameras with higher quality cameras. The installation did not involve any existing safety related equipment and is an improvement in the implementation of the JAF Security Plan.

JAF-SE-82-068, Modification M1-82-085

This modification consisted of installing a barrier to encircle Hose House No. 14. This will prohibit vehicles from parking too close, thus allowing access at all times. The installation did not involve a safety-related system or component. This modification is beneficial for implementation of the plant Fire Safety Program.

JAF-SE-83-04, Modification M1-84-063

This modification consisted of relocating the Reactor Head Spray Flow Transmitter (10FT-103) from the west side of column Y-3 to the south side of column Y-3. Also, caps/plugs were installed on the ends of the drain tubing. This relocation of flow transmitter 10FT-103 will prevent it from getting damaged, since it was located in a high traffic area which made it quite vulnerable. The flow transmitter configuration is designated as QA Class I and Seismic Class 1. This installation would retain that classification and reduce the probability that 10FT-103 might be inadvertently damaged.

JAF-SE-83-024, JAF-SE-84-048, Modification F1-82-37

This modification involved routing the radwaste condensate receiver unit vent line to the radwaste equipment vent system. This will eliminate the possibility of uncontrolled releases of contaminated materials through the condensate receiver vent.

As required by Exhibit 9.4 (2.C.1-5) of JAFNPP WACP 10.1.6, this modification was reviewed against the criteria of Regulatory Guides 1.143 and 1.21, and Standard Review Plan 11.3 and 11.5 and found to be in accordance with all applicable sections.

Safety Evaluation JAF-SE-84-048 describes the pre-operational test to demonstrate the operation of valve 37-TCV-800 and the cooling of radwaste condensate to the condensate receiver unit 87-CR-35.

JAF-SE-83-068, Modification F1-79-05

This modification involved the installation of an entirely new system for monitoring Turbine-Generator Stator Winding temperatures to allow continuous monitoring and alarming as specified in General Electric Technical Information Letter 854 and the accompanying GEK-45937D. A datalogger system will meet the continuous operation monitoring and start-up requirements as specified in these documents. Installation of this system enhances analysis capability and provides a higher degree of reliability. Design and installation conform to the existing plant design criteria.

JAF-SE-83-070, SE-85-035, Modification F1-83-20

This modification consisted of the installation of a permanent floating decant device in the concentrated Waste Tank (TK-655), a new decant pump and pump filter/regulator, a specific gravity sensor, flow indicator and the necessary piping and valves to transfer the liquid decant from the tank to the Waste Neutralizer Tank feed header.

This modification will eliminate operator exposures during tank decanting operations. In addition, it will reduce exposure from the trenches by eliminating a source of radioactivity liquid.

The installation of this modification does not affect the function of the liquid radwaste system as described and analyzed in the FSAR.

Safety Evaluation JAF-SE-85-035 covered the pre-operational testing of the concentrated Waste Tank Decant System modification components and circuitry to verify that it functions in the manner required by the modification.

JAF-SE-83-071, JAF-SE-85-144, JAF-SE-83-074, Modification F1-82-039

This modification involved installing a Desludge and Decant System for the Waste Neutralizer Tanks (WNT) (20TK642 A&B). This is due to solids and resins which could cause plugging, pitting and holes in the concentrator tubes. All pumps and valves installed will be remotely operated from the Radwaste Control Room.

This modification was reviewed against the criteria of Regulatory Guides 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.

Safety Evaluation JAF-SE-85-144 describes the pre-operational test to demonstrate the proper functioning of the Waste Neutralizer Tank Decant System components and circuitry prior to placing the system into operation.

Safety Evaluation JAF-SE-83-074 describes the pre-operational test to demonstrate the proper functioning of the Waste Neutralizer Tank Desludge System components and circuitry prior to placing the system into operation.

JAF-SE-83-077, Pre-Operational Test Procedure 71L

This procedure covered the pre-operational testing of the Turbine-Generator Stator Winding Temperature Monitoring System. The tests will verify the integrity of the existing resistance temperature detectors (RTDs) and thermocouples (TCs) and associated cables, the operation of the datalogger, the scan expanders and datalogger program, and the system alarm and annunciator operation. The reason for this modification (F1-79-05) is to provide continuous temperature monitoring and alarming as specified in General Electric Technical Letter 854 and the accompanying GEK-45937D.

JAF-SE-83-079, Modification M1-83-052

This plant modification consisted of replacing 10 unit cooler fans in the Crescent Area. The replacement motors are fully qualified to JAF environmental conditions during postulated accidents and meet IEEE Standards 323-1974, 334-1974, and 344-1975. The new equipment has design specifications equal to or better than the original equipment.

JAF-SE-83-086, Modification F1-81-036

This plant modification involved the relocation of the LPCI Keep Full Level switches to the RHR system pump discharge piping at the high points in the system. This modification was done to eliminate air from the system to prevent water hammer when the RHR pumps are started-up. The newly installed lines become part of the reactor coolant pressure boundary during LPCI and shutdown cooling operation and satisfy the isolation criteria of GDC 55 of 10 CFR 50 Appendix A and FSAR Section 5.2.

JAF-SE-84-001, Modification F1-83-058

This safety evaluation considered the potential effects of the installation of a computer system and associated peripherals (two disk drives, line printer, system console, asynchronous ports and modems.) The Meteorological Monitoring and Radiological Assessment System (MMRAS) computer processes signals from the meteorological tower's remote terminal units (RTUs). The MMRAS compiles and processes data from the RTUs and transmits a summary of this information to the Control Room, Technical Support, Emergency Operations Facility and offsite emergency planning organization. MMRAS does not perform a control function. Therefore, failure of the MMRAS computer will not affect plant operation.

JAF-SE-84-007 Rev. 2, Modification F1-83-060

Following indications of intergranular stress corrosion cracking, weld overlay repair was performed on Weld 22-22.

The safety evaluation stated that overlay imparts a compressive residual stress to the inner portion of the pipe wall. It, thereby, reduces stress corrosion crack growth. In addition, the added weld metal structurally reinforces the pipe to restore the pipe wall design margin. The safety evaluation concluded that using weld overlay as a repair does not constitute an unreviewed safety question and does not reduce the margin of safety.

JAF-SE-84-009, Modification F1-81-039

This safety evaluation considered the effects associated with the installation of remote operated pump switches in the Radwaste Control Room on Panel 25-17, and the relocation of the Condensate Receiver Unit (CRU) tank Hi/Hi annunciator to Panel 25-17.

This modification was necessary to ensure the proper and continual monitoring of the Condensate Receiver Unit tank level, and prompt operator action should the CRU pumps fail to start automatically.

The installation of this modification does not affect the function of the liquid radioactive waste system as described and analyzed in the FSAR.

JAF-SE-84-010, Modification F1-82-038

This modification involved the re-routing of the Radwaste Equipment Vent System, in order to reduce unnecessary exposure to radwaste operators in the Radwaste Control Room. In addition, the floor drain collector tank and waste collector tank, which were previously open tanks, would be covered and vented to the Radwaste Equipment Vent System. This would reduce any airborne concentrations due to the tanks.

Radiological controls were evaluated, and have shown that no new radioactive releases will occur due to the implementation of this modification. Also, as required by Standard Review Plan 11.3, it has been shown that no new potentially explosive mixtures of hydrogen and oxygen will be introduced anywhere in the system.

JAF-SE-84-016, Modification F1-82-048

This modification entailed the installation of a conductivity cell in the liquid radwaste system floor drain pump discharge line. This will enable the operator to obtain continuous, automatic, and accurate measurement of the floor drain effluent. The cell is connected to a variable-range conductivity monitor, in the Radwaste Control Room on Panel 25-17.

This modification will result in lower personnel radiation exposure. Also, the increased availability of accurate conductivity data afforded by this modification will result in a reduction in the volume of liquid needed to be processed.

The installation of this modification does not affect any safety-related systems or systems with safety-related components.

JAF-SE-84-026, Modification M1-84-008

This modification consisted of replacing High Pressure Coolant Injection System 23MOV-14 valve actuator Model SMB-1 with a new actuator Model SB-1. This modification was performed for environmental qualification purposes. The replacement actuator was purchased with all necessary environmental qualification and QA documentation. The new equipment performs the identical function of the existing equipment and has design specifications equal to or better than the existing equipment.

JAF-SE-84-027, SE-84-056, SE-84-077, SE-85-034, SE-85-052, SE-85-123, Modification F1-82-053

Safety Evaluation JAF-SE-84-027 covered a modification which involved the replacement of existing direct and differential pressure actuated mechanical sensor switches with an analog system capable of more accurately monitoring certain Emergency Core Cooling System (ECCS) and Reactor Protection System (RPS) protection parameters. In addition, temperature elements associated with leak detection systems, located in the steam tunnel, drywell personnel access, torus room, RHR heat exchanger, reactor building and crescent areas, were replaced with nuclear qualified Class 1E Resistance Temperature Detectors (RTD). Each RTD used in this modification was environmentally and seismically qualified based upon the conditions at the FitzPatrick plant. The qualification for these instruments is based upon IEEE 323-1974 & 344-1975 and is more stringent than the instruments being replaced.

The replacement of mechanical sensor switches with an analog transmitter trip system will more accurately and reliably monitor ECCS and RPS protection parameters. As such, each parameter sensed by the analog system does not alter the requirements for instrument initiation, function, and operation that existed prior to the modification. Therefore, implementation of the ATTS only affects the system at the sensor level, not the logic level.

The operation, design and surveillance criteria, upon which the ATTS modification is based, has been analyzed in General Electric Licensing Topical Report NEDO-21617-A Class I December 1978, "Analog Transmitter Trip Unit System for Engineered Safeguard Sensor Trip Inputs." This report documents the improvements in performance that the ATTS provides over the existing mechanical switches.

Safety Evaluation JAF-SE-84-056 covered a partial modification (Phase 1A) which consisted of the installation of conduit supports in the Control Room, Relay Room and Reactor Building elevation 227', 272', and 300'. In addition, cable pulling between the Control Room and Relay Room was conducted. The reason for this modification was to accelerate the physical installation of conduits, support, and cable pulling to facilitate the installation of the ATTS. Implementation of this modification is in accordance with the FSAR, Technical Specification, and regulatory requirements.

Safety Evaluation JAF-SE-84-077 covered a partial modification (Phase 1B) which consisted of the continued physical installation of conduits, supports, and cable pulling.

Safety Evaluation JAF-SE-85-034 covered a partial modification (Phase 1C) which consisted of: routine 120 VAC Division I and II power to the 09-95 and 09-96 ECCS panels; routing 125 VDC Division I and II power through two Topaz inverters and parallel feeding the Division I and II 120 VAC power for panels 09-95 and 09-96; provided necessary cabling between panels and annunciator panel 09-43; and installed conduit and supports to support the ECCS panel power up and annunciator circuitry.

This modification phase provided the necessary control power and annunciator for ECCS panels 09-95 and 09-96 to facilitate the installation of the ATTS. This ATTS Phase 1C design installation meets all applicable design criteria, and is in accordance with the FSAR and Technical Specifications.

Safety Evaluation JAF-SE-85-052 covered the pre-operational testing of each Analog Transmitter Trip System instrument loop. This ensures that each ATTS loop which replaced a sensor switch in the RPS or ECCS system operates to accurately monitor the parameter being sensored, to supply a "trip" output to RPS/ECCS logic at the desired setpoint, and to indicate certain conditions.

Safety Evaluation JAF-SE-85-123 covered a modification which involved the addition of a filter capacitor in the transmitter signal circuit of twenty (20) ATTS instrumentation loops. This will effectively filter existing process-generated noise.

The design and materials for the addition of the noise filter capacitor is consistent with the original ATTS design requirements. The applicable design specifications and codes are met in the addition of the filter capacitors. This change will not cause the ATTS System to be degraded in any other way other than the system response time changes which have been evaluated. The proposed modification will minimize the process noise problems identified previously which will result in increased ATTS system reliability.

JAF-SE-84-053, Modification M1-84-031

This modification consisted of substituting a new material for the circulating water pump impellers as recommended by the pump manufacturer, Allis Chalmers. The new impeller material has higher tensile strength, greater corrosion and erosion resistance, and better weldability with no change to pump performance. This modification does not create a safety concern since it provides a better material in a non-safety related component.

JAF-SE-84-062, Rev. 1, Modification M1-84-051

This modification involved the removal and replacement of the ADS SRV accumulator check valves with new nuclear qualified check valves in accordance with the commitment made to the NRC by the Power Authority . The existing 1/2" check valves were replaced with environmentally and seismically qualified 3/8" check valves from the same manufacturer. The change in valve size does not have an impact on ADS system operation, since the check valves are used only to charge the ADS accumulators.

JAF-SE-84-074, Modification M1-84-059

This modification involved replacing the slotted head bonnet screws on the ASCO HV-90-405 solenoid valves with hex head bonnet screws and external tooth lockwashers. This replacement does not degrade the performance and/or the operability of the ASCO solenoid valves but assures that proper torqueing of the bonnet screws is achieved, as recommended in ASCO Bulletin HVA-90-405 and GEK-9582A.

JAF-SE-84-079, Modification F1-84-027

This modification entailed the construction of a caged enclosure to be used as a QA/QC calibration block and associated equipment storage area. The enclosure, located in the south end of the Turbine Building, is provided to identify, organize, and control ultrasonic test calibration blocks. In addition, the caged enclosure will provide a locked section for gang boxes, magnetic particle machine, chemistry lab and all other associated equipment. This will restrict unauthorized personnel access to this equipment. The installation of the caged enclosure did not involve or affect any existing safety-related equipment.

JAF-SE-84-082, Modification F1-84-023

This modification consisted of three parts:

- The existing Control Rod Drive (CRD) hydraulic system orificed check valve (03-CV-100) was replaced. This valve was located between the exhaust water header and the drive cooling water header. It was replaced with two pressure equalizing valves in parallel (03-RVF-150A&B).
- All carbon steel piping was removed from the system.
- The cooling water pressure control station was opened permanently.

This modification was required to comply with NUREG-0619, Part II, Section 8.1(4) and GE SIL 200, Revision 1, dated July, 1979. The design modifications were reviewed and comply in their entirety with NUREG-0619 (Part II) and GE SIL 200 (Rev. 1). These modifications will improve CRD system operation and will permit permanent CRD operation without the return line.

JAF-SE-84-084, Modification M1-84-073

This modification consisted of sealing of conduit entries on safety-related motor control centers to eliminate the potential for dripping water and direct moisture impingement on the internal compartments of cubicles. This work was necessitated by environmental qualification requirements and did not require de-energization of motor control centers or any work on internal components.

JAF-SE-84-091, Modification M1-84-074

This modification involved replacing the packing and stuffing box gland with mechanical seal cartridges for a group of non-safety related radioactive waste processing system pumps to provide improved pump seal performance. Improved seal performance will result in reducing the amount of maintenance and resulting personnel radiation exposure. The mechanical seal materials were reviewed and determined to be satisfactory for the intended service.

JAF-SE-84-100, Rev. 1, Modification F1-84-058

This modification covered the installation of two elbolets on the contaminated equipment drain lines. The radiation levels in the area due to internal contamination in these lines is high enough to create a localized high radiation area. The elbolets will provide access for periodic hydrolase cleaning of the contaminated portions of the lines, thus maintaining radiation levels and personnel exposure ALARA. The existing drain line configuration is not safety related and is designated as QA Category II. This installation retains that classification and will improve the operation and maintainability of the system.

JAF-SE-84-102, Modification F1-84-026

This modification involved the replacement of the existing drywell ventilation fan discharge dampers, for which replacement parts are no longer available. This system is not a designed reactor safety system and the component substitution will have no effect on system flow dynamics.

JAF-SE-84-103 Rev. 1, Modification F1-84-079

This modification involved replacement of the Reactor Core Isolation Cooling (RCIC) system steam supply drain line and trap. The affected carbon steel piping was replaced with a more erosion resistant stainless steel alloy. The existing steam trap, for which spare parts are no longer available, was replaced with a new model incorporating the latest design improvements. The new configuration retains the existing QA Class I and Seismic Class I classification and will improve the operation and reliability of the system.

JAF-SE-84-106, SE-85-030, Modification F1-83-011

This modification covered the installation of a chilled water system in the Turbine Building. The purpose of this modification was to improve the off-gas recombiner system performance and to reduce off-gas leakage to the Turbine Building. The design modifications to the off-gas recombiner system were reviewed for compliance with the FitzPatrick "ALARA" Program, FSAR, Environmental Technical Specifications, and NRC Regulatory Guide 1.143. This modification is designed to QA Category II, non-safety related system requirements. Safety Evaluation JAF-SE-85-030 covered the pre-operational testing for this modification.

JAF-SE-84-107, Modification F1-83-058

This safety evaluation considered the potential effects associated with the installation of two valved and capped connections (one supply and one return) in the Service Water System piping. These connections will be used to supply cooling water to the MMRAS (Meteorological Monitoring and Radiological Assessment System) room air conditioning unit. Because the Service Water System must be taken out of service to make these connections, their installation was completed during a plant outage.

The Service Water System is a non-safety related system. Therefore, this modification will not significantly degrade plant safety.

JAF-SE-84-109, Modification M1-84-081

This modification involved replacing VOS-150F valves with 3/4"-2" y-globe valves. The replacement VOS-150F valves will be Conval Inc. Clampseal Valve (Type 12G2). The replacement valves meet or exceed technical and quality assurance requirements stated in the original valve procurement specification for JAF Mark No. VOS-150F. The Clampseal Valve design is easily maintainable, which should reduce personnel radiation exposure. Finally, the new valve weights are less than the originals, so there is no impact on piping stress analysis.

JAF-SE-84-113, SE-84-153, SE-85-54, Modification F1-84-43

This modification covered the re-routing of the #10 JAF-SCRIBA 345KV Line at the request of Niagara Mohawk. Because of the re-routing, two new relay panels and their associated conduits and control cables had to be installed.

Safety Evaluation JAF-SE-84-113 covered installation of a switchyard junction box, conduits and cables associated with relay cabinets. No termination and/or connections were made and there was no impact on plant operation.

Safety Evaluation JAF-SE-84-153 covered installation of the two new relay panels and their associated conduits, termination of their associated cables and removal of old equipment. Based on the stability performance study dated October 5, 1984, relocation of the transmission line will result in an improvement in system stability performance when compared to the prior arrangement. The installation sequence was reviewed for impact on plant operations. It was determined that implementation of this modification would have no direct impact on plant operation.

Safety Evaluation JAF-SE-85-054 covered pre-operational testing. Testing was performed with the plant in cold shutdown and main generator out of service.

JAF-SE-84-121, Modification F1-83-058

This safety evaluation considered the potential effects of the installation of an air conditioning unit and required piping connections. This air conditioning unit maintains suitable temperature and humidity conditions for the Meteorological Monitoring and Radiological Assessment System (MMRAS) computer. The MMRAS computer room is on the 286'-0" elevation of the FitzPatrick Administration Building.

Cooling water for the MMRAS room air conditioning system is supplied by the Normal Service Water System.

The safety evaluation considered the potential impact associated with the installation on the normal service water pumps, risers, lines and cooling units.

JAF-SE-84-124, SE-84-152, Modification F1-82-050

This partial modification consisted of providing a fire protection system for the Iodine Monitoring Building by adding carbon dioxide cylinders, associated piping and valves, fire protection system control panel, junction boxes. pressure trip, pressure switch, detectors, power supply cables and control cables for detection, annunciation, and extinguishing of fires. This partial modification is part of Modification F1-82-050, "Post Accident Sampling System for Radioiodines and Particulates", as required by NUREG 0737, Item II.F.1.2. This system was installed to protect the sampling machine and Iodine Monitor Building in case of a fire and it is not safety related.

Safety Evaluation JAF-SE-84-152 covered the pre-operational testing of the fire protection system for the Iodine Monitor Building to verify that it functions in the manner required by the modification.

JAF-SE-84-126, Rev. 2, JAF-SE-85-038, JAF-SE-85-037, JAF-SE-85-069, Modification F1-82-033

This modification consisted of replacing an existing valve, 10 MOV-18, with a new valve, and subsequent rerouting of the 20 inch RHR shutdown cooling line for ease of maintenance.

Safety Evaluation, JAF-SE-84-126, Rev. 2 addressed both the mechanical installation and associated electrical installation work. The existing valve is being replaced because prior operational experience has shown excessive internal and external leakage which has on occasion resulted in local leak rate test failures and motor operator failure. This modification will improve the overall performance and reliability of the RHR shutdown cooling system. Also, the new configuration of piping and valve (actuator pointing up) will greatly improve operation and maintenance activities.

Valve 10 MOV-18 is an integral part of the RHR shutdown cooling system and is part of the reactor coolant pressure boundary (nuclear safety related). The plant shall be in cold shutdown condition for implementation of this modification. The new valve meets EQ requirements of 10 CFR 50.49, and shall be leak tested in accordance with 10 CFR 50 App. J (type C test). No safety hazard, or adverse effect on plant operation is presented, nor will plant safety be compromised.

Safety Evaluation JAF-SE-85-038 covered the rigging associated with Modification F1-82-033. The removal of the RHR system pipe involved safety concerns in the lifting of heavy loads over safety-related seismic category I components. An adequate hoisting/floor support system would preclude accidental fall or impact of safety-related components. The rigging system's ultimate strength is at least 400% of the working strength, providing a minimum factor of safety of 2, in addition to the inherent safety factor of the load handling equipment.

Safety Evaluation JAF-SE-85-037 covered the pre-operational testing of the new gate valve. The pre-operational test would ensure the proper functioning of the gate valve 10 MOV-18 and indicating lights on panels 9-3 and 9-4 in the control room. No part of the FSAR is affected by the conduct of this test.

Safety Evaluation JAF-SE-85-069 covered the use of a 0.66 hp motor on the new valve 10 MOV-18 in lieu of the proposed 1 hp motor. This was found necessary due to the long lead time of the 1 hp motor. The torque provided by the 0.66 hp motor is 10 ft-lbs, which is considered satisfactory to operate the valve which operates at 9.79 ft-lbs. Once the 1 hp motor is available it will be installed during the following outage.

JAF-84-127, Modification F1-83-036

This safety evaluation considered the potential effects associated with the preoperational test of eight new water spray curtains in the Reactor Building. The preoperational test procedure includes: a checkout of associated piping and electrical control directly associated with the water sprays, functional test of temperature sensors and manual break glass stations, functional test of the alarm circuitry on local control panels and Fire Protection Panel, confirmation of proper operation of flow control valves, and measurement of water curtain flow rate.

JAF-SE-84-131, Rev. 1, Modification M1-84-088

This modification to the Residual Heat Removal System involved replacement of a Powell valve model 1523WE with an Anchor Darling valve M/N 93-14944 Fig. E 6318-5. The valve was procured to the QA requirements of the original procurement specification A.P.O.13.

Replacement valve class and operating characteristics are equal to the original. Quality requirements are equal to or higher than original specifications.

JAF-SE-84-136, Modification F1-83-036

This safety evaluation considered the potential effects associated with the installation and operation of eight water spray curtains in the Reactor Building.

The operation of the new water curtain systems will be both manual and automatic. Automatic operation of a pair of "cross zoned" fire detectors at a water curtain boundary will cause the system logic to initiate deluge of that boundary curtain. Similarly, when a stairway detector receives a logic initiation temperature at the detector, stairway spray will commence. It will be possible to manually initiate water curtain sprays at local break glass stations located at various strategic points within the Reactor Building. There is no provision for manual actuation of water sprays from the Control Room. A reset button at each local control panel is provided to silence local bell alarm and reset flow control valve solenoid. It will be possible to shut off water curtain spray due to inadvertent actuation by use of manual supervised shut-off valves at each flow valve control station for each water curtain. The shut-off valves are all located such that they are readily accessible in case isolation is required. Shut-off valve status is annunciated and displayed in the Control Room. Water curtain deluge is also annunciated and displayed in the Control Room. The existing JAF Fire Protection Control Panel will be modified to show water curtain location and status and shut-off valve position.

As a result of the analysis and conclusion provided in the Reactor Building Water Spray Curtain Flooding Analysis report dated August 2, 1984, the flood level in the Crescent Area will not impact the operation of safety-related equipment required for safe shutdown, as a consequence of the fire, based on the following occurrences:

a. A "worst-case" fire in Reactor Building Zone RB-1A, (as defined in the report referenced above).

b. Actuation of five water spray curtains associated with Item a) above, plus two (2) hose stations delivering 250 gpm, for a period of three (3) hours.

c. Failure of the Crescent Area sumps to remove the water supplied in Item b) above.

Water curtain spray headers for four of the water sprays are configured with a sheet metal heat collector-baffle arrangement to allow close spacing of the sprinklers and control of the discharge from the sprinklers to form a "water curtain." Four stairway boundaries are protected by sprinklers. Hydraulic design density for all boundaries is 3 gpm/linear ft.

JAF-SE-84-137, Modification M1-84-098

This modification consisted of replacing two pilot solenoid valves in the Radioactive Liquid Waste System with valves of identical design except that they will contain viton elastomers rather than Buna-N elastomers and are qualified to DOR guidelines. Two position switches on each valve have been replaced with environmentally qualified position switches purchased with all required EQ and QA documentation.

JAF-SE-84-138, Modification M1-84-005

In order to fulfill the requirements of NRC Bulletin 79-01B and 10 CFR 50.49, enclosures have been designed to isolate electrical equipment from the environment caused by an HELB or LOCA. The enclosures are designed to withstand the FitzPatrick Plant Operating and Design Basis Earthquake or HELB without failure. The enclosure design provides sufficient access to the equipment so that maintenance, testing and repairs may be performed on the equipment with minimal hazard to personnel.

JAF-SE-84-141, Modification F1-84-056

This modification consisted of constructing a pre-engineered metal respiratory cleaning facility to provide a central location where a closed loop cleaning system for decontaminating respirators can be established. The respiratory cleaning facility is classified as QA Category III and is not safety-related.

JAF-SE-84-142, Modification F1-82-01

This safety evaluation considered the potential effects associated with the installation and operation of three Auxiliary Shutdown Panels including associated equipment.

The addition of these panels will provide the equipment and information necessary to assure that the requirements of Section III.L of Appendix R to 10 CFR 50, "Alternative and dedicated shutdown capability", are met.

JAF-SF-84-145, Modification M1-84-102

This modification covered the installation of a pressure gauge at the Schaevitz Transducer panel for thermal performance monitoring purposes. The Schaevitz Transducer acts to instantaneously sense loss of generator load and trips the turbine before overspeed conditions occur. The installation of a pressure gauge for local indication does not change or affect the function of the system. This modification involved non-safety related, QA Category II equipment.

JAF-SE-84-146, Modification F1-84-60

This modification covered the installation of Gamma TIP Detectors which replaced the Neutron TIP Detectors. Past experience has shown that Neutron TIP Detectors indicate radial power asymmetries for core locations where the actual power distribution is symmetric. These asymmetries are attributed to sensitivity of detector response to water gap variations caused by random detector positioning in the LPRM detector tube and can result in artificially high radial power causing unnecessarily conservative thermal hydraulic limits. This leads to reduced reactor operating flexibility. Gamma TIP Detector readings change very little due to variation in water gap dimensions.

The Gamma TIP detectors for this modification are direct replacements for the currently used neutron TIP detectors, and are interchangeable and compatible with the existing guide tubes, drive machines and indexers. The Gamma TIP flux probing monitor is directly interchangeable with the existing flux probing monitor. Connectors for both units are the same.

JAF-SE-84-147, Modification F1-81-015

To meet requirements of NUREG 0578, Item 2.1.5.a and NUREG 0737, Item II.E.4.1, the power supplies and control circuitries to valves 27-MOV-120 and 121 were upgraded to IEEE Class 1E level. Two additional IEEE Class 1E Motor Control Centers were installed to power these valves and provide additional breaker locations for future loads. The power supply to 10-MOV-18 was relocated to one of the new MCC's to meet the requirements of 10 CFR 50 Appendix R, Section III, G.2.b.

Upgrading the power supplies of 27-MOV-120 and 121 from non-safety related to safety class 1E represents an improvement to the safety of the plant by insuring post accident capability to vent or purge hydrogen gas from the primary containment. Relocating the power supply of 10-MOV-18 to meet the separation criteria of Appendix "R" ensures that a major fire will not disable redundant primary containment isolation valves.

JAF-SE-84-148, Modification F1-82-057

This modification covered the removal of the reheater steam blanketing system. This system is not used and removing it would result in a reduction in steam leakage and subsequent high radiation levels in the Turbine Building ventilation exhaust. This modification resulted in increased plant efficiency and eliminated a continuous maintenance work item.

JAF-SE-84-149, "B LPCI Battery-Replacement Jumper Cable (WRED No. 71/22836)

This work activity involved temporary replacement of an inter-rack jumper in the "B" LPCI independent power supply battery. This was necessary because of damage incurred to the original cable. The nominal ampacity of the original jumper was 1440 amps. The replacement jumper is rated at 1515 amps and is, therefore, suitable for this application.

JAF-SE-84-150, Floor Loading Evaluation in Safety-Related Area

Five concentrated floor loads (counting equipment) were being considered for a lab store room in the Administration Building 272'-0" elevation. Although the 272'-0" elevation of the administration building is not considered safety-related, the next lower level (cable tunnel) contains safety-related equipment. The FSAR, Table 12.4-1, indicates that the permissible live load for this area is 150 psf. The loads, each distributed over 4 legs with 3" x 3" pads on the bottom of each leg with respect to their positions, exceeds the FSAR allowable loadings. An engineering analysis was performed in accordance with the ACI 318-1963 code and it was determined that the additional floor load is acceptable. ACI 318-1963 is the original concrete design code for the FitzPatrick plant.

JAF-SE-84-151, Modification F1-84-042

This modification involved the replacement of High Pressure Coolant Injection (HPCI) system Turbine Hotwell Level Switches, 23-LS-099 and 23-LS-100, since they could not be qualified for their specified service environment plus accident and post-accident environment. Since a different switch arrangement is being used, the HPCI Turbine Hotwell level column was relocated south of the existing level column. The new level column is seismically designed and supported.

JAF-SE-84-154, Modification M1-84-110

This modification consisted of the moisture sealing of all safety-related terminal blocks in the Reactor Building by the application of a silicone conformal coating to all accessible surfaces of terminal boards. This work was required in order to upgrade the terminal blocks to an environmentally qualified status.

JAF-SE-84-156, Modification F1-83-058

This safety evaluation considered the potential effects associated with a preoperational test of the MMRAS (Meteorological Monitoring and Radiological Assessment System) Room Air Conditioning System. This test includes tests of the temperature and humidity control setpoints, fan, refrigeration, reheat and humidification systems, unit capacity, required electrical power and service water requirements.

The test does not involve safety-related equipment. All equipment under test is located in the FitzPatrick Administration Building.

JAF-SE-84-159, Modification F1-84-024

This modification involved the replacement of Containment Atmosphere Dilution (CAD) system make up valves' electro-pneumatic controllers. The existing controllers were not qualified for accident conditions in the Torus Room. The new controllers are fully qualified to the applicable seismic and environmental conditions.

JAF-SE-84-160, Modification F1-84-103

Five pipe support clamps on several safety-related systems have been identified by the manufacturer to experience unacceptable deflections when subjected to an off-axis loading condition. This modification would reduce the deflection in the clamps and/or provides greater load capacity in the rigid strut assembly. The affected piping systems were restored to their original design conditions through this modification.

JAF-SE-84-161, Modification F1-83-058

This safety evaluation considered the potential effects associated with the MMRAS (Meteorological Monitoring and Radiological Assessment System) computer hardware. The system consists of a main processor, two disk drives, one tape drive, line printer, system console, asynchronous communication ports and modems. The system

also includes three Remote Terminal Units (RTU) - one at each of the meteorological towers. These RTUs process and transmit signals from meteorological instruments to a data logger, before being received and processed by the main processor. MMRAS output can be transmitted to the Control Room, Technical Support Center, Emergency Operations Facility and emergency response organizations in the event of a release.

The system is not safety-related and only provides information; it performs no controlling functions.

JAF-SE-84-162, Modification F1-83-058

This safety evaluation considered the potential effects of the MMRAS (Meteorological Monitoring and Radiological Assessment System) software. The MMRAS software improves the Authority's ability to assess the potential release of radioactivity from the FitzPatrick plant to the atmosphere.

The information provided is used by plant personnel and emergency response organizations to assess and predict possible effects of a release. The system is not safety related and only provides information; it performs no controlling functions.

JAF-SE-85-021, Modification F1-84-003

This modification involved installation of two, redundant, QA Class I (IE), seismically and environmentally qualified hydrogen/oxygen analyzers. These analyzers are located in the reactor building secondary containment. They replace Comsip K-III hydrogen analyzers and Beckman oxygen analyzers previously in use. The new analyzers use the sampling line and power feeds supplied to the original K-III analyzers.

Some new instrumentation cables were required to meet the system requirements of the new analyzers. In addition, two remote control modules were installed. They provide data acquisition, computations,and automatic or manual control of all analyzer functions. They are redundant and IE qualified.

Finally, as part of this modification, two solenoid valves were removed in a retired line and the line was capped.

The safety evaluation concluded that no safety or accident analyses would be changed or compromised as a result of this modification.

JAF-SE-85-022, Modification M1-85-001

Powell Valve Model 1523WE was replaced with Anchor Darling Valve M/N 93-14944 Fig. E5318-5. The replacement valve class and operating characteristics are equal to the original and quality requirements are equal to or higher than original specifications.

JAF-SE-85-023, Modification F1-84-045

This modification consisted of replacing 47 existing temperature sensors with Nuclear Qualified Class IE sensors and testing of the sensors prior to placing them in service. Existing sensors do not meet IE Bulletin 79-01B qualification requirements. Replaced sensors are fully qualified to JAF environmental conditions during postulated accidents and meet IEEE Standards 323-1974 and 344-1975. Replacement sensors were purchased with all necessary QA documentation. Since this modification consisted of substitution of equipment having design specifications equal to or better than the original equipment, there is no increase in the probability of occurrence or consequences of an accident or malfunction.

JAF-SE-85-024, Modification F1-83-003

This modification consisted of the upgrading of the Valve Monitoring System to an environmentally qualified status. To achieve environmental qualified status, the following changes were made:

- Pre-amplifiers were relocated from the drywell to the east pipe tunnel.

- All cable junctions and cable connectors in the drywell and the reactor building were sealed with environmentally qualified Raychem heat shrink material.

- The accelerometers were mounted inside protective brackets which are designed to protect them from accidental damage due to work in the area of the safety relief valves during outages.

JAF-SE-85-025, Modification F1-84-096

This modification consisted of the replacement of all asbestos insulation in the Reactor Recirculation System. This is an Environmental Protection Agency (EPA) requirement which the Power Authority has committed to implement.

The vendor supplying the replacement material, as outlined in the purchase specification, is required to perform a stress corrosion test in accordance with Reg. Guide 1.36. All insulation is fire tested in accordance with ASTM E-84 or USCG Material Flammability Specifications. The vendor is required to state its position on Proposed Reg. Guide 1.82, Rev. 1 with respect to its product. Testing is done in accordance with references as outlined in Proposed Reg. Guide 1.82, Rev. 1. The insulation vendor has completed a radiation test in an estimated 40 year life dose at an independent testing laboratory with no physical degradation of the insulation system. Calculations were performed that show that the new insulation would not significantly change the system response for seismic load. Finally, the NYPA/JAF Quality Assurance Dept. reviewed and approved the Vendor QA Program prior to material fabrication.

JAF-SE-85-026, Modification M1-85-002

This modification involved adding a reducing tee and valve to line 4-WTW-133-45, between 42-D-24 (cation exchanger) and 42-F-23 (activated carbon filter)in the Water Treating System. This is to facilitate connection of mobile demineralizers. This is a Category II System as stated in FSAR Section 12.2.5. The valve and fittings conform to existing pipe class 133 to ensure system integrity.

JAF-SE-85-027, Modification M1-85-003

This modification consisted of sealing cable entrance openings with silicone elastomer for safety-related instrumentation sensors. The seals are meant to prevent the intrusion of moisture into the sensors during postulated HELB accidents. This modification was required to ensure environmental qualification of the sensors.

JAF-SE-85-028, Modification F1-84-025

This modification upgraded various components of the refuel platform. The purpose of this modification was to improve refueling platform reliability and facilitate refueling through finer speed control. Some of the components of the refuel platform which were upgraded included mast assembly, grapple head and control unit. Replacement of the existing single hook grapple head with a dual hook grapple head will decrease the probability of a fuel assembly drop accident as described in the FSAR. Design changes incorporated in the new refuel mast assembly result in a strengthening of the mast. Substitution of the new mast assembly does not degrade the structural integrity of the refuel platform and fulfills the original safety function.

JAF-SE-85-031, Modification M1-85-005

This modification entailed the installation of a tee and valve connection in demineralize water discharge of Hot Water Heat Exchanger (42-WH-15). This will facilitate flushing of the Emergency Diesel Generators and Diesel Fire Pump cooling systems. This is a Category II system and not classified as safety-related. Installation of this connection is in accordance with piping classification 153.

JAF-SE-85-040, Modification M1-84-089

This safety evaluation considered the potential effects of the installation of two UHF radios in the FitzPatrick Security Building. An antenna, transmission line and control line was installed for each of the radios. In addition, control panels in the control room and Technical Support Center were modified to accommodate control for both radios.

This modification does not directly involve safety-related structures, systems or components.

JAF-SE-85-043, Heavy Load Lift, Modification F1-81-015

This modification involved the lifting of new motor control centers (MCCs) from the Reactor Building elevation 272' floor to elevation 369' through the main equipment hatch and then lowered to elevation 344'-6". The weight of the largest unit of MCC to be lifted is approximately 1500 lbs. The TERA Corporation, Report No. 2, Evaluation of Heavy Load Handling at JAF, addresses a free falling load of 3000 lbs. from elevation 369' to 272'. This report concludes that 3000 lbs. would not cause damage to equipment below elevation 272'. Therefore, the load of 1500 lbs., one half of the analyzed load drop, would result in no damage to safety-related equipment below elevation 272'. Should the MCC be dropped when lowering it to elevation 344'-6", it would have to break through hatches at that level, and at 326'-9", and 300' to get to a RHR heat exchanger. The unlikely event of this happening, and ensuring they are lowered through one hatch at a time, provides for a sufficient margin of safety. Consequently, failure of the lifting apparatus in any phase of the required work cannot affect the ability of the plant to shut down.

JAF-SE-85-044, General Load Evaluation

This safety evaluation addressed the lifting of 'general' heavy loads in the Southeast Equipment Hatch Area without increased risk to safety-related equipment located under the 272'-0 elevation floor. The TERA Corporation performed the NUREG-0612 analysis and found that no damage resulted if the equipment dropped was below: 6,600 lbs. dropped from 300' to 272', 3,700 lbs. dropped from 326' to 272', 2,800 lbs. dropped from 344' to 272' and 2,100 lbs. dropped from 369' to 272'.

JAF-SE-85-046, Modification F1-85-014

This modification covered the structural modification to extend the hinge shaft by adding support assembly and split bearing to personnel air lock interior and exterior doors. These doors were experiencing bending and damage to the upper shafts due to improper swing rod adjustment and this modification will help in reducing shaft bending. This modification does not affect the actual airlock structure or its ability to maintain an airtight seal.

JAF-SE-85-047, Use of ANSI B31.1 1983 Code Addition with Addenda in Lieu of 1967 Code Edition (Section 137 Only)

This evaluation addressed the use of ANSI B31.1-1983 Code Edition with Addenda in lieu of the 1967 Code Edition Section 137 "Leak Tests" for plant performance of safety related system and component leak tests (except those tests which reflect surveillance requirements contained in the FitzPatrick Plant Technical Specifications or regularly scheduled pressure tests associated with the Inservice Inspection Program).

This evaluation concluded that the use of ANSI B31.1-1983 Code Edition with Addenda provides a procedure which is as good as or better than what was used previously and provides testing methods consistent with the latest recognized standards based upon industry experience.

JAF-SE-85-048, Rev. 1, Modification F1-84-105

This safety evaluation considered the potential effects associated with the replacement of 14 fire dampers and the addition of 3 new fire dampers. The 14 replacement dampers will be installed in the Turbine Building Ventilation System (4 dampers), Control and Relay Room Ventilation System (6 dampers) and Battery Room Ventilation System (4 dampers). The 3 new dampers will be installed in the Reactor Building Ventilation System.

All seventeen dampers will have a 3 hour fire rating. The failure of these 3 new dampers will not significantly degrade safety because the Reactor Building Ventilation System in which these dampers are installed perform no safety function. The 14 replacement dampers are equivalent in every respect to the dampers replaced except for their fire rating.

JAF-SE-85-049, Modification F1-84-106

This safety evaluation considered the potential effects associated with the replacement of six doors with new Underwriter's Laboratories (UL) three-hour fire rated doors.

The replacement doors are constructed of a non-combustible material and will carry the UL seal.

The new doors are equal to or superior to the existing doors in every respect.

JAF-SE-85-050, Rev. 1, Modification F1-84-107

This modification involved the replacement of two access hatches with structurally superior floor sections with a full three-hour fire rating. Two additional access hatches were sealed shut and sufficient pyrocrete applied to the underside to achieve a three-hour fire rating. In accordance with 10 CFR 50 Appendix R, a number of Reactor Building piping penetration through floors which constitute three-hour fire barriers were sealed. A single electrical penetration was also sealed. Sealing these areas will enhance the plant's ability to be safely shut down during a fire and in no way will adversely affect plant safety.

JAF-SE-85-051, Modification F1-85-015

This modification covered the installation of travel stops for the containment vent and purge valves 27AOV-111, 27AOV-112 and 27AOV-113 to restrict the maximum opening angle to 40° instead of the present limit of 50°. This modification was based on an analysis which showed that for 40° maximum angle of opening these valves would be operable during a Design Basis Accident. Calculations PES-001, "Containment Purge/Vent Valve Load Carrying Capacity Analysis", was presented to the NRC on January 28, 1985 and contains the technical justification for this modification.

JAF-SE-85-053, Modification M1-85-016

Nineteen incandescent lighting fixtures were replaced with high pressure sodium lighting fixtures within the primary containment drywell. The replacement fixtures are of the same configuration and weight as the original fixtures and utilize the existing power supplies. The use of sodium lighting in the drywell is not restricted by the "BWR Operator's Manual for Materials and Processes", NEDE-30143, June 1983. This was verified by General Electric Co., Nuclear Energy Business Operation. The lighting is not safety related nor will this modification affect any safety related systems.

JAF-SE-85-056, Modification F1-84-095

This modification consisted of constructing a new steel stud and gypsum sheetrock wall and door to expand the area outside the control room. This new area will allow non-operations personnel to conduct necessary work package business in a designated area outside the control room and will provide an organized system for control of all pertinent documentation. The new wall will be constructed to QA Category III and Seismic Class II requirements. This is consistent with the requirements applied to the existing adjacent masonry block wall that will be removed. The wall is designed with bracing to withstand the effects of the worst case of the Design Basis Earthquake in order to prevent damage to any control panels and safety-related equipment in the control room.

JAF-SE-85-059, Modification M1-85-017

This modification covered the replacement of the existing 4-way Ross solenoid valve with an equal or better solenoid valve from the same manufacturer. This substitution will not change the safety status or rating of the equipment.

JAF-SE-85-061, Modification F1-85-004

This modification consisted of providing separate electrical fusing for High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) system logic circuitry for the two distinct functions of steam line break isolation circuitry and turbine supervisory and protection circuitry. In this way, a postulated environmental failure of one function will not affect the other function. This will assure an optimum level of operating reliability.

JAF-SE-85-063, Modification M1-85-020

This modification consisted of rewiring the test logic of the power load unbalance relay circuit of the turbine Electro-Hydraulic Control (EHC) System. This minor modification to the existing circuitry will prevent unit trips due to testing of the power load unbalance circuit.

JAF-SE-85-064, Temporary Jumper

This minor modification involved a temporary deviation from the electrical separation criteria between "A" Battery Board Compartment A0-1 and "B" Battery Board DO-2 for Pump 94-P-2 with the plant in the cold shutdown condition. This was performed due to a loss of "A" DC Power as a result of "A" charger failure, which reduced fire protection alarm and automatic actuation and loss of control power for many plant circuit breakers. Overall, this modification improved the safety of the plant until the "A" DC System was restored to normal. In the interim, the fuel grapple was tagged to prevent fuel moves and no work requiring ECCS was performed.

JAF-SE-85-065 REV.1, LSA Temporary Storage in Condensate Storage Tank Area

Contaminated RHR piping stored in LSA boxes is to be stored in the Condensate Storage Tank (CST) area (west of the Reactor Building). The material is to be moved from the Reactor Building because it was not to be reused and radiation levels associated with the material were sufficiently high as to affect ambient dose rates in the Reactor Building. The material will be stored in a condition acceptable for transport in accordance with D.O.T. regulations. The maximum allowable dose rate on the outside of the boxes will be less than 1R/hr, and all posting and control requirements of 10CFR20 will be met. Surveys will be taken to ensure that radiation levels measured in adjacent office spaces are acceptable.

JAF-SE-85-067, Heavy Load Lift

This safety evaluation concerned the lifting of the floor plug for the hatch to the East Crescent (Reactor Building, Elev. 272). This lift will be performed with the plant in the cold shutdown condition with alternative means of decay heat removal available in the unlikely event the floor plug were to fall. Should the floor plug fall through the hatch, the following safety-related equipment could be damaged: 1) HPCI pump discharge line, 2) RHR shutdown cooling header line, 3) "B" side RHR discharge line and discharge cross tie, 4) RHR to fuel pool cooling connections, and 5) the feeder to BMCC-4 from 718BCB-2B.

Since the plant will be in cold shutdown condition, HPCI will not be required to be operable. Damage to the RHR shutdown cooling common header would have the potential of draining the vessel. Therefore, either 10 MOV-17 or 10 MOV-18 shall be closed during the lift. The RHR "B" side discharge line can be isolated allowing operation of the "A" side subsystems. If the RHR to Fuel Pool Cooling connection lines were damaged, isolation is possible with long term decay heat removal provided by alternative methods. If the feeder to BMCC-4 were damaged, the only significant load to consider is 10 MOV-17 and this valve will be closed during the lift. Based on the above information, no significant hazard exists and the concerns of NUREG-0612 have been satisfactorily addressed.

JAF-85-068, Modification M1-85-024

This modification consisted of replacing the main generator exciter field breaker, GE Type AKF, with a new breaker, Type 206B4913. The existing breaker is no longer manufactured and spare parts are not readily available. The replacement breaker is recommended by the GE company and is currently in production. This breaker does not perform a safety-related function and this modification does not affect any safety-related systems.

JAF-SE-85-072, Modification M1-85-025

This modification to the Turbine Gland Sealing System involved changing a Cochrane-Crane valve of similar design to Anchor Darling 4", 900 # weld ends, carbon steel, flex wedge gate valve, to match the existing Limitorque actuator. This component is contained in a non-safety category II system as stated in FSAR Section 10.4.3.2. This valve substitution does not compromise plant safety nor present an unreviewed safety question.

JAF-SE-85-078, Appendix R Safe Shutdown Preoperational Test for 25ASP-3

This safety evaluation considered the potential effects associated with the preoperational testing of Safe Shutdown Panel 25ASP-3. The purpose of this preoperational test is to verify the proper operation of 25ASP-3. The test includes: a thorough checkout of the changes made to the H06 switchgear and related circuits, and functional test of each isolation device circuit, and operational logic test of each plant circuit affected, and a transfer of control to the shutdown panel.

The majority of this test is performed with the breakers racked out or on de-energized circuits when the plant is in a cold shutdown condition.

JAF-SE-85-082, Modification F1-85-011

This modification covered the replacement of the 24 volt instrument batteries with a capacity of 175 amp-hours with higher capacity batteries of 195 amp-hours. The condition of the instrument batteries has deteriorated with age and replacement will assure system reliability. The replacement batteries are qualified to IEEE Standard 323 and tested in accordance with IEEE Standard 450-1980. The new battery and battery racks are designed and tested for seismic loading.

JAF-SE-85-085, Appendix R Safe Shutdown Preoperational Test for 25ASP-1&2

This safety evaluation considered the potential effects of performing a preoperational test of Safe Shutdown Panels 25ASP-1 and 25ASP-2. The test included a thorough checkout of the changes made to systems affected by the addition of this panel, actual transfer of control to the panels, functional test of each isolation circuit and an operational logic test of each plant circuit affected by the new isolation circuit. These tests were designed to verify proper operation of the shutdown panel.

The majority of this test is performed with the breakers racked out or on de-energized circuits when the plant is in cold shutdown condition.

JAF-SE-85-086, Appendix R Safe Shutdown Preoperational Test for 25RSP

This safety evaluation considered the potential effects of performing a preoperational test of Safe Shutdown Panel 25RSP. The test included a thorough checkout of the changes made to systems affected by the addition of this panel, actual transfer of control to the panels functional test of each isolation circuit and an operational logic test of each plant circuit affected by the new isolation circuit. These tests were designed to verify proper operation of the shutdown panel.

The majority of this test is performed with the breakers racked out when the plant is in cold shutdown condition.

JAF-SE-85-087, Rev. 1, Modification M1-85-035

This modification consisted of replacing the Reactor Building railroad track bay door latch mechanisms with a new design furnished by the original door manufacturer in order to resolve maintenance problems and provide trouble-free operation. In addition, a replacement steel doorstop has been installed in place of the existing aluminium doorstop to provide better resistance to breakage from vehicles and equipment which use this doorway. The new door latch assemblies were designed in accordance with the original purchase specification and the new doorstop was machined from the original manufacturer's design drawing and is an exact replacement dimensionally.

JAF-SE-85-088, Modification F1-85-032

This safety evaluation considered the potential effects associated with the installation of remote terminal units (RTUs) at the FitzPatrick meteorological towers. RTUs are installed at each of the three FitzPatrick MMRAS (Meteorological Monitoring and Radiological Assessment System) meteorological towers (main, backup and inland). Each RTU processes analog signals from its associated meteorological tower and transmits the processed information to a data logger and MMRAS computer. The RTUs do not perform any control functions. Failure of any of the three RTUs will not affect plant operation. The MMRAS is used only in the event of an emergency.

JAF-SE-85-089, Pre-Operational Test 27P

This pre-operational test verified that the containment hydrogen/oxygen analyzers would function as required. It also demonstrated that these analyzers can be used to verify that Technical Specification limits for containment oxygen are not exceeded.

JAF-SE-85-090, Modification F1-85-033

This modification consisted of the replacement of the electromechanical overcurrent trip devices (GE type EC-2A), in selected low voltage circuit breakers, with solid-state trip devices (Westinghouse "amptector"). This modification was necessitated by the operating exp rience with type EC-2A trip devices which have proven to be inconsistent in maintaining their calibration and are subject to failure with age. The replacement solid state trip device has a tighter operating tolerance and much better repeatability than the EC device. Use of these devices on safety related breakers has been restricted to those in mild environments pending completion of the entire qualification program. This modification will enhance the AC power distribution system's ability to meet its safety objective as stated in FSAR Section 8.5.2.

JAF-SE-85-093, Heavy Load Lift, Modification F1-85-033

This safety evaluation assessed the impact of performing the heavy load lifts associated with vessel reassembly with A and B LPCI batteries and charger inverters inoperable. Maintenance procedure MP-4.2 requires A and B LPCI Inverters and Chargers operable for all lifts associated with vessel reassembly.

The following are considered equivalent operability requirements to requiring A and B LPCI Batteries and Inverters to be operable: 1) Either A or B Core Spray System available, 2) MCC 155 and 165 energized by the maintenance feeder, 3) A and B emergency diesel generator systems operable, and 4) A or B RHR system available for the shutdown cooling mode. This provides one ECCS system to provide emergency makeup in the event of a LOCA. Additionally, it provides the ability to isolate A and B recirculation loops and one system of shutdown cooling. These requirements exceed the requirements currently in the reassembly maintenance procedure. They are, therefore, acceptable.

JAF-SE-85-095, Pre-Operational Test 66C

This pre-operational test verified the operation of the Environmental Enclosure HVAC equipment, and related circuits. A functional test and an operational test of each circuit was performed. No other plant systems are affected by this test since this equipment is independent of all other plant systems.

JAF-SE-85-097, Modification F1-84-062

This modification required the installation of two electronic high limiter units in the control loops of the A&B recirculation system M-G sets. The limiters will provide a more stable signal to the Bailey scoop tube positioner when operating at 100% power. Failure of a limiter will not cause a transient different than the failure of any other component in the speed control loop.

JAF-SE-85-098, Modification F1-85-038

This modification involved the reduction of the number of battery cells in the "A" and "B" Station Batteries from 60 cells to 58 cells by removing the two cells in the middle of each battery and installing an appropriately sized jumper cable. The objectives of this modification are to reduce the DC bus voltage during a battery equalizing charge and to increase the individual cell voltage during both a battery float charge and an equalizing charge. The reduction in bus voltage will help extend the life of the various DC components connected to the bus. The higher cell voltage results in increased "gassing" which in turn mixes the electrolyte and helps reduce stratification and results in improved cell performance. This modification enhanced the 125V DC system's ability to perform its safety objective as stated in FSAR Section 8.7.1.

JAF-SE-85-100 Rev. 1, Modification M1-85-042

This safety evaluation covered the installation of a welded plug in the recirculation pump seal injection system inlet or outlet, as needed. The existing arrangement consists of a socket welded pipe and blind flange. A leak had developed through a crack at the pump cover to pipe weld of recirculation pump 'A'. The welded plug repair was designed by the pump manufacturer, Byron Jackson, and the repair does not adversely affect pump operation or pressure integrity.

JAF-SE-85-103, Modification M1-85-044

This modification covered the replacement of RCIC Turbine Steam Inlet Valve 13MOV-131 by an equivalent valve from the same manufacturer. The existing valve is no longer manufactured and the replacement is equal in design and quality of materials with the valve originally supplied.

JAF-SE-85-108, Rev. 1, Shielding for DW Escape Hatch

Six - 4' and six - 6' water shields of fiberglass construction manufactured by Nuclear Power Outfitters, Inc. will replace one section of the concrete block and steel shield now in place. This is being performed to eliminate the need for installing one section of the permanent concrete block shielding in the Reactor Building at the NW escape hatch. The post accident shielding analysis at the site boundary is not altered due to this modification and floor loading requirements for the units are met. The water shields incorporate high impact reinforced plastic that provides long service and resists deformation.

JAF-SE-85-116, Modification F1-85-051

This modification involved the installation of two additional eight hour emergency battery packs near Alternate Shutdown Panels 25ASP-3 and 25RSP and an additional emergency lighting fixture near 25ASP-2. These modifications are the result of NRC recommendations made during Appendix R compliance audit 85-20.

JAF-SE-85-119, Interim Operation with Reversed Instrument Sensing Lines for Main Steam Line "A" and "B" Steam Flow

The reason for this evaluation was to assess the impact on plant operation with part of the main steam line "A" and "B" instrumentation reversed. Some of the "A" steam line instrumentation was actually sensing "B" steam line flow and vice versa. The interim configuration of the main steam lines "A" and "B" was evaluated based on the following design criteria: 1) Primary Containment Isolation System (PCIS) design requirements, 2) Feedwater Control System (FWCS) design requirements, and 3) JAFNNP Electrical Separation Criteria.

With the interim configuration, the PCIS System process and electrical separation criteria are met because all instruments are located on the same instrument rack and have identical cable routings to the RPS/PCIS cabinets; for the purposes of feedwater control, the interim configuration functions identically to the original design; and the electrical separation criteria were reviewed and met all applicable criteria. Thus, for the interim period (approx. 36 hrs), no unanalyzed condition existed at the site.

JAF-SE-85-126, Modification M1-85-063

This modification involved the installation of a check valve in the caustic addition line to the waste neutralizer tanks and regeneration system. Installation of this check valve increased the separation of contaminated and uncontaminated systems. The piping systems involved in this modification are non-safety related, QA Category II.

JAF-SE-85-128, Modification M1-85-064

Three rigid supports were found to be damaged following an abnormal operating condition, possibly involving a feedwater system water-hammer. This minor modification involved the repair of these supports. Red Head anchor bolts were replaced with superior Hilti bolts and one support was entirely redesigned using the original loading conditions. On support PFSK-1278, one Hilti bolt could not be installed due to interference with reinforcing bars in the concrete wall. The modified support configuration was reviewed to be acceptable by the Design Agent. These supports are classified as QA Category II, non-seismic and not safety-related.

JAF-SE-85-131, Modification F1-85-065

This safety evaluation considered the potential effects of "wrapping" five cables in the red (CT-1) and blue (CT-2) cable tunnels. These cables (conduits) are wrapped with a material with a one-hour fire rating to enhance FitzPatrick's ability to withstand the effects of a fire. The addition of this fire-resistant cable wrap increases the "separation" of redundant or diverse systems required for safe shutdown. It further eliminates potential effects on associated cables.

The addition of this cable wrap is required for conformance with the requirements of Appendix R to 10 CFR 50.

JAF-SE-85-133, Modification MI-85-075

This modification involved changing setpoints for four RTDs which function as steam leak detection sensors on the HPCI branch steamlines in the A&B RHR Heat Exchanger Rooms from 133°F to 158°F.

The modification was designed to eliminate the potential for inadvertent tripping of the Steam Leak Detection System during the hottest months of the year. Calculations performed show that the setpoint change will not cause an increase in the Reactor Building temperature transients due to postulated HELB accidents. The change will not affect the detector location criteria for providing maximum detector sensitivity and preventing simultaneous isolation of both the HPCI and RCIC by a steam leak in either of the systems.

JAF-SE-85-134, Modification M1-85-079

This modification changed the setpoints of four temperature switches. These switches function as steam leak sensors for non-safety related RWCU lines in both the "A" and "B" RWCU pump rooms. This modification was designed to eliminate the potential for inadvertent tripping of the Steam Leak Detection System during the hottest months of the year. The modification will not cause an increase in the Reactor Building temperature transients due to postulated HELB accidents and will not affect the criteria used as a basis for establishing automatic system isolation as described in FSAR Section 4.9.

JAF-SE-85-137, Modification F1-83-036

This safety evaluation considered the potential effects associated with installation and operation of a modification of seven Reactor Building Water Spray Curtains.

The modification adds a second remote manual station for each water curtain to assure that the sprays can be manually actuated in the event that a fire simultaneously disables the automatic actuation and prevents access to the existing manual station.

JAF-SE-85-138, Modification F1-83-036

This safety evaluation considered the potential effects associated with performing a preoperational test of the remote manual stations for seven reactor building water spray curtains. The test includes checkout of the associated piping modifications and a functional test of each manual actuation station to verify proper operation.

JAF-SE-85-140, Modification F1-82-026

This modification consisted of constructing an Interim Waste Storage Facility (IWSF) in the northeast corner of the protected area on the FitzPatrick site. This facility will be used to store solidified liners, drums, and LSA boxes containing low level radioactive waste. The IWSF is classified as a non-safety related QA Category III structure because the failure of the facility structure and its equipment will not affect the operation and safe shut-down of the plant and because in the unlikely event of a facility failure, the

exposure rates from a potential radiological release will be within the limits of 10 CFR 100 guidelines. The IWSF was designed in accordance with the design criteria requirements of the Uniform Building Code. Dead load, live load, seismic, wind and tornado loads have been included as part of the design criteria. Overall regulatory guidance for the development of the IWSF is provided by NRC Generic Letter 81-38, "Storage of Low Level Radioactive Wastes at Power Reactor Sites", and applicable CFR sections.

JAF-SE-85-152, Modification M1-85-087

This modification consisted of the replacement of the motor operator for the High Pressure Coolant Injection (HPCI) Outboard Steam Supply Valve 23 MOV-16. The replacement operator is a Limitorque Model SB-1-60 replacing the original Limitorque SMB-1-60. The replacement operator eliminates the need for a motor brake and will improve valve performance and simplify maintenance and spare parts requirements. The new operator is qualified to IEEE 323-1974 and 344-1975 requirements and results in an upgraded qualification status compared to the existing actuator. The new operator is approximately 180 pounds heavier than the original operator. An analysis of the effect of the increased weight on the valve yoke and body and on the associated piping has been performed. The analysis concludes that the replacement of the operator will not exceed the allowable stress limits of the valve and piping.

JAF-SE-85-155, Modification F1-83-058

This safety evaluation considered the potential effects associated with a preoperation test of the MMRAS (Meteorological Monitoring and Radiological Assessment System). The test included: power, instrumentation and data cables; disconnect switches, power distribution panels, engineering new cables and equipment; and functional testing of associated equipment.

The test does not involve safety-related equipment. All equipment under test is located in the Fitz Patrick Administration Building.