10CFR50.59

Boston Edison
Pilgrim Nuclear Power Station
Rocky Hill Road
Plymouth, Massachusetts 02360-5599

Nancy L. Desmond
Regulatory Relations Group Manager

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U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
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Addendum to the Report of Changes, Tests and Experiments
Performed at Pilgrim Nuclear Power Station

Boston Edison is submitting this addendum to the report of the changes, tests and experiments at Pilgrim Nuclear Power Station for the period of January 1, 1996, through April 21, 1997 submitted on October 21, 1997 (BECo letter 2.97.106). This addendum includes remaining items for the original report.

A listing of changes affecting the Final Safety Analysis Report (FSAR) completed in the reporting period is attached. Each listing contains a brief description, a reference to the relevant FSAR sections, and a reference to the supporting safety evaluation(s).

No tests or experiments were performed during the report period.

N. L. Desmond

MTL/dmc/radmisc/5059RPT

Attachment: Addendum to Report of Changes, Tests and Experiments

cc: Mr. Alan B. Wang, Project Manager
Project Directorate I-3
Mail Stop: OWFN: 14B2
Office of Nuclear Reactor Regulation
1 White Flint North
11555 Rockville Pike
Rockville, MD 20852

U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Senior Resident Inspector
Pilgrim Nuclear Power Station

IE47

PDC 83-51D: Replacement of the Plant Process Computer

Safety Evaluation: 1913, 1694

FSAR Section Affected: 7.16

This modification replaced the existing plant process computer with a new computer and installed analog data acquisition hardware for use by the safety parameter display system. The plant process computer is not safety related. Plant system logics were not changed by this modification. This modification did not involve an unreviewed safety question.

PDC 84-23: Ultrasonic Flow Sensors

Safety Evaluation: 1754

FSAR Sections Affected: F9.2-2, F9.2-3

This change installed nine ultrasonic flow sensors to monitor influent to the clean radwaste facility. It also added conductivity and turbidity monitors, provide flush capability, and provided a data logger for the nine new flow sensor inputs, two existing flow sensors and new conductivity and turbidity input. The addition of flow, conductivity and turbidity monitoring systems provides data needed to identify the source of the influent to the clean radwaste facility so that corrective action plans can be formulated to reduce the volume of waste. These modifications did not cause a change to the system's functional performance and therefore did not create any additional accident conditions. They did not affect the operation of any other equipment and did not affect the technical specifications. This change did not constitute an unreviewed safety question.

PDC 85-57: Extended Test System

Safety Evaluation: 3007

FSAR Sections Affected: 10.22

The hydrogen water chemistry extended test system (ETS) modification provides hydrogen flow from high pressure gas cylinders located outside of the process buildings to the feedwater pump suction to reduce the dissolved oxygen concentration in the coolant around stainless steel components. This change also installed an augmented oxygen injection system to reduce the hydrogen gas concentration upstream of the offgas recombiner. The oxygen supply is from a cryogenic tank and evaporator unit located outside of the turbine building. The ETS serves as a backup to the electrolytic hydrogen water chemistry system (below).

This change did not increase the probability or consequences of an accident because no equipment credited in the accident analysis was affected and no safety related equipment was affected. This change did not create a new or different type of accident. This change did not reduce the margin of safety as defined in the basis for any technical specification because no technical specification bases were affected. This change did not involve an unreviewed safety question.

PDC 86-10: Electrolytic Hydrogen Water Chemistry System

Safety Evaluation: 2974

FSAR Sections Affected: 10.21, F10.21-1 F10.21-2, F10.21-3, T10.21-1, F1.6-1

This change installed the electrolytic hydrogen water chemistry system (EHWCS). The ETS (above) is utilized as a back-up for the EHWCS. The EHWCS is primarily housed in a new gas generator building.

These systems are non-safety related systems designed to suppress the radiolytic formation of oxidants in the reactor coolant, thereby mitigating the potential for intergranular stress corrosion cracking of the reactor pressure vessel recirculation inlet and outlet safe ends, recirculation inlet thermal sleeves, and recirculation piping. Suppression of the oxidants is attained by the controlled addition of hydrogen to feedwater at the suctions of the feedwater pumps. The injected hydrogen passes through the coolant cycle unreacted. This leaves an "excess" of hydrogen in the main condenser that would not have an equivalent level of oxygen to recombine in the offgas system. To maintain the offgas system near its normal operating characteristics, a flow rate of oxygen equal to one half the injected hydrogen flow rate is put in the offgas system upstream of the recombiner. Oxygen is also injected into the condensate pump suctions to prevent erosion corrosion in carbon steel due to low oxygen levels.

The EHWCS did not increase the probability or consequences of an accident because postulated EHWCS failures were evaluated and shown to have no effect on any safety related systems. This change did not degrade or prevent the response of systems needed to mitigate the accidents previously evaluated in the FSAR. The gas generator building is passively ventilated and lines carrying hydrogen are located in well ventilated areas to prevent hydrogen from accumulating in sufficient quantity to form a combustible mixture. The hydrogen increase in various plant systems is not significant enough to introduce any hazards. The EHWCS does not interact with any safety related system in any manner that would affect a safety systems' operation. The system is not used to prevent or mitigate any accidents or transients analyzed in the FSAR. The system does not create the possibility of a new or different type of accident because the EHWCS injects a controlled amount of hydrogen into the feedwater with a minimum impact to other plant systems. Any excess hydrogen entering the offgas system is controlled by adding stoichiometric amounts of oxygen to combine with the hydrogen upstream of the offgas recombiner. This change did not reduce the margin of safety as described in the basis for any technical specification because the system does not affect the allowable design limits addressed in the bases and the events evaluated in FSAR chapter 14 remain unchanged and bounding. These changes did not involve an unreviewed safety question.

PDC 86-52C: Installation of SEP Diesel Fire Pump

Safety Evaluation: 2159

FSAR Section Affected: F10.8-1

This modification installed a diesel driven fire pump, a diesel fuel oil transfer system, and an enclosure for the pump. This pump provides a redundant water source to the RHR system for containment spray and RPV injection during extended station blackout and severe accident scenarios beyond the current plant design bases. The pump takes suction from the city water main and discharges it to the fire protection system main yard loop. The main yard loop discharges into the residual heat removal system header crosstie that was installed under another modification (PDC 86-52B). This modification was part of the Boston Edison Safety Enhancement Program. This change did not increase the probability or consequences of an accident because no safety related systems were affected by this change. This change did not create the possibility of a new or different type of accident. This change did not reduce the margin of safety as defined in any technical specifications because there were no changes to technical specifications. This change did not involve an unreviewed safety question.

PDC 86-109: Flatbed Filter Turbidity Measurement Modifications

Safety Evaluation: 2175

FSAR Section Affected: F9.2-3

Modifications were made to rework the existing design of the flatbed filter in order to improve its adequacy and restore the original system capability for automatic flatbed filter control. In addition, the new equipment is more reliable.

This change did not increase the probability or consequences of an accident because the change resulted in minor changes to the non-safety related clean radwaste system but did not functionally impact any safety systems. The equipment installed does not interconnect with any safety related equipment or systems. This change did not create a new or different type of accident because it was concluded that the modification did not create any additional failure modes. This change did not reduce the margin of safety as defined in the basis for any technical specifications because it did not affect any technical specifications. As a result, no unreviewed safety questions were involved.

PDC 88-47: Panel Changes For Control Room Design Review

Safety Evaluation: 2396, 2543, 2568, 2619

FSAR Sections Affected: F7.4-8, F4.8-1, F7.4-2, F9.4-1, F10.9-1

This modification removed abandoned equipment from the main control room panels, removed or tagged internal and external panel wiring, and rehabilitated panel areas to restore them to their original condition.

This change did not increase the probability or consequences of an accident because the patching and painting effort was principally cosmetic in nature and did not adversely affect the structural design of the control panels. This change did not create the possibility of a new or different type of accident because it did not affect the structural integrity of the panels and there were no new types of failures postulated. This change did not reduce the margin of safety as defined in the basis for any technical specification because no technical specifications were affected. This change did not constitute an unreviewed safety question.

PDC 90-63: Modification to the CRD Pump Suction Pressure Control Station

Safety Evaluation: 2517

FSAR Section Affected: F11.9-1

These modifications were performed to improve the stability, operability, reliability, control, and accuracy of the pressure control of the demineralized water going to the suction of the control rod drive (CRD) pumps. The CRD pump condensate demineralizer supply line was enhanced by the upgrade of the pressure control station. This system is not safety related. This modification did not alter the existing configuration or operation of the CRD pump condensate demineralizer supply suction line. This change did not increase the probability or consequences of an accident because the system reliability was enhanced to prevent high pressure buildup. This change did not create a new or different type of accident because no new accident initiators were introduced. This change did not reduce the margin of safety as defined in the basis of any technical specification because technical specifications were not changed. This change did not involve an unreviewed safety question.

PDC 91-10C: Salt Service Water Piping Replacement - Intake Structure and Auxiliary Bay Wall Penetration Spool Piece Replacement

Safety Evaluation: 2693

FSAR Sections Affected: F10.7-1, A.6, A.8.3, A.9.3.4, A.9.4, A.9.4.1, A.9.4.2, and A.9.4.3

The purpose of this change was to replace the carbon steel salt service water (SSW) rubber-lined piping penetrating the walls of the intake structure and the walls of the auxiliary bay with new titanium piping. The SSW system provides a heat sink for the reactor building closed cooling water system under normal, transient, and accident conditions. This modification ensured that the stiffness and strength of the affected walls was restored to a condition equal to or better than the condition prior to replacement activities. The piping penetration anchor loads were evaluated and comply with the 1989 ANSI B31.1 code requirements.

This change did not increase the probability or consequences of an accident because this change did not affect the capability of the intake structure, auxiliary bay, SSW piping, piping components, and pipe supports to perform their safety-related functions under plant design basis loads. This change did not create the possibility of a new or different type of accident because no safety related equipment or components in the area of installation of the SSW penetration spool pieces were impacted and the change did not introduce an interaction with other safety related systems. The margin of safety as defined in the basis of any technical specification was not impacted by this new installation because no technical specification was affected. This change did not constitute an unreviewed safety question.

PDC 91-10D: Salt Service Water Pipe Replacement Project

Safety Evaluation: 2668

FSAR Section Affected: 12.2

This change was part of a series of changes that replaced the buried rubber-lined carbon steel salt service water piping with titanium piping because of degradation identified in the piping. This change constructed new pipe vaults and laid some of the titanium pipe. The pipe tie-in to the system was performed under PDC 91-10E. The work scope of this change included the piping between the intake structure and the reactor auxiliary bay and a portion of the discharge piping from the auxiliary bay to the general area of the circulating water intake piping. A nearby Appendix R electrical duct bank could have been affected by the construction activities, this was included in the design and safety evaluation.

The safety related functions of the Class I portion of the auxiliary bay structure, the Class I SSW piping and the Class I Appendix R duct bank were ensured during the construction period of the concrete SSW pipe vaults. The SSW piping, Appendix R duct bank and auxiliary bay structure remained qualified for seismic and tornado loads during the construction period. Restrictions and controls were placed on the activities associated with construction of the SSW trench shoring, concrete pipe vaults and installation of the new SSW piping to provide reasonable assurance that no damage occurred to the Class I items.

This change did not increase the probability or consequences of an accident because the safety related systems remained operable during the excavation and vault construction time period. The possibility of creating an accident other that those previously evaluated was not increased because the design and controls placed on the activities provided reasonable assurance against a common mode failure. The margin of safety as defined in the basis for the technical specifications was not impacted by this installation because no technical specification was affected. This change did not constitute an unreviewed safety question.

PDC 92-05: Installation of Filter Shield Casks

Safety Evaluation: 2699

FSAR Sections Affected: 10.17, 11.4, 5.3

This change installed six individual filter shielding casks (FSC) and associated radiation monitoring instrumentation for the particulate/iodine filter on sample racks C2247 and C2264. Three parallel FSCs (each containing a dedicated filter) were installed for each rack (each rack previously had just one filter). The inlet and outlet tubing to the existing single filter on each sample rack was re-routed and modified to accept the new FSCs. This change was made to meet the requirements of the NUREG-0737 Section II.F.1, "Sampling and Analysis of Plant Effluents". PNPS uses the normal operations effluent sampling systems from the main stack and reactor building vent for post-accident effluent sampling as well. When applying the NUREG-0737 design basis envelope for source terms, the former unshielded filter configuration resulted in reaching or exceeding GDC 19 personnel exposure limits when obtaining post-accident samples. The shielding casks and radiation monitoring instrumentation were installed to reduce personnel exposure and assure compliance with GDC 19. The sample racks and associated equipment are not safety related and there is no significant impact on safety related systems as a result of this modification. This change did not constitute an unreviewed safety question.

PDC 92-06: Replacement and Relocation of Conductivity Recorders

Safety Evaluation: 2678

FSAR Section Affected: F11.8-1

This change involved the replacement and relocation of existing conductivity recorders with new digital display/analog bar graph recorders. The conductivity loops are not safety related. Because of Class II over Class I seismic considerations, the recorders were purchased as seismically qualified.

The replacement of a recorder with its equivalent does not increase the probability or consequences of an accident. Safety systems were not degraded because the function and operation of the recorders were not altered. The replacement of these recorders did not create the possibility of a new or different type of accident because the replacement of a component by its equivalent does not alter the function of the recorder. This change did not reduce the margin of safety as defined in any technical specification because no technical specifications were affected. Therefore, this change did not constitute an unreviewed safety question.

PDC 92-36: Construction of Low Level Radwaste Storage Facility

Safety Evaluation: 2720

FSAR Sections Affected: 9.3.5, 12.2.1.3 and F1.6-1

The purpose of this change was to install an outdoor, Low Level Radwaste Facility (LLRWF) on site east of PNPS. The LLRWF provides for interim storage of low level, solid radioactive waste in a controlled outdoor facility pending the shipment of the waste to a long-term storage facility or disposal site. The affected yard parking area, lighting and area fencing provide no safety function. All required design basis events and accidents that can be postulated for the LLRWF will not result in exceeding 10% of the 10CFR100 dose limits; as a result, the complete facility and associated equipment serves no safety-related function. The LLRWF satisfies allowable offsite dose rates for all postulated design basis events and design basis accidents. This change did not constitute an unreviewed safety question.

PDC 92-40: CRD System Inservice Testing Modification

Safety Evaluation: 2696

FSAR Section Affected: F3.4-9

This modification installed new check and stop valves in the control rod drive (CRD) pump discharge piping. These valves prevent the potential for backflow from the CRD drives to outside secondary containment when the pumps are secured. This potential leakage path was discussed in NRC Information Notice 90-78. This change also installed isolation valves and test connections to allow leak testing of the scram discharge volume vent and drain isolation valves.

These changes did not increase the probability or consequences of an accident because no safety related equipment was adversely affected. These changes did not create the possibility of a new or different type of accident because they eliminated a potential leakage path of primary containment coolant previously unidentified. The margin of safety as defined in the basis for the technical specifications has not been impacted by the changes because no technical specifications were affected. These changes did not constitute an unreviewed safety question.

PDC 92-58: Replacement of the Kaye Ramp Scanner and Processor

Safety Evaluation: 2823, 2768

FSAR Section Affected: F3.4-9

This plant design change replaced the existing Kaye Ramp Scanner and Processor system (which measured control rod drive and balance of plant temperatures) with a new data acquisition system. The replacement of the system provided the operators with a monitoring system that is easily operated, understood, and provides information for use at a later date to assess plant performance.

This change did not increase the probability or consequences of an accident because no safety systems were affected and the function of the acquisition system has not been altered. This change did not create the possibility of a new or different type of accident because the replacement of a component by its equivalent does not alter the function of the component. This change did not reduce the margin of safety as defined in the basis for any technical specification because no technical specifications were affected. This change did not constitute an unreviewed safety question.

PDC 92-60: Control Room Annunciator Replacement Phase I

Safety Evaluation: 2747

FSAR Sections Affected: F8.6-1, F8.7-1

This modification replaced the existing control room annunciator with a distributed annunciator system in panels C170 and C171 and relocated control switches and associated indicating lights on panels C2 and C3. This change enhanced the operator's ability to identify and analyze abnormal events.

The annunciators do not provide any safety function and only provide information to the operators. This change did not increase the probability or consequences of an accident because no accident initiators were affected, all accident mitigating systems remained operable, and accident scenarios were unaffected. This change did not create a new or different type of accident because no safety functions were affected. This change did not reduce the margin of safety as defined in any technical specification because the basis of the technical specifications were not changed. This change did not involve an unreviewed safety question.

PDC 92-63: Control Room Annunciator Replacement - Phase II

Safety Evaluation: 2812

FSAR Sections Affected: F8.6-1, F8.7-1, 7.18.35

This modification replaced the existing control room annunciator with a distributed annunciator system in panels C1, C2, C3, C903, C904, C905 and CP600. This change enhanced the operator's ability to identify and analyze abnormal events.

The annunciators do not provide any safety function and only provide information to the operators. This change did not increase the probability or consequences of an accident because no accident initiators were affected, all accident mitigating systems remained operable, and accident scenarios were unaffected. This change did not create a new or different type of accident because no safety functions were affected. This change did not reduce the margin of safety as defined in any technical specification because the basis of the technical specifications were not changed. This change did not involve an unreviewed safety question.

PDC 93-24: Reactor Water Level Back Fill System

Safety Evaluation: 2769

FSAR Sections Affected: 7.8.5.2, F3.4-9, F7.8-2

This change installed an emergency core cooling system reference leg back fill system in response to Generic Letter 93-03. This system prevents the migration of non-condensable gases down the reference leg by maintaining a continuous back flow up the leg during normal operations. The back fill system flow is supplied from the control rod drive charging system.

This change did not increase the probability or consequences of an accident because the non-safety related portions of the reactor water level reference leg back fill system are isolated from the safety related instrument racks via two safety related check valves. This change did not create the possibility of a new or different type of accident because the normal operation of the reference leg back fill system does not impact the safety function of the reactor pressure vessel instrumentation on the affected reference legs. The margin of safety as defined in the basis of the technical specifications was not reduced because no technical specification was affected. This change did not constitute an unreviewed safety question.

PDC 93-26: ATWS Inverters and Power Supply Replacement

Safety Evaluation: 2777

FSAR Section Affected: F3.9-1

The purpose of this change was to improve the reliability of the anticipated transient without scram (ATWS) system. The inverters and their associated power supplies were replaced with converters. This was done because the inverters experienced higher than expected failure rates. This modification did not change the ATWS design functions it only upgraded the +24 VDC power supply for a more reliable +24 VDC power supply. This change had no effect on any safety functions because the ATWS system is not safety related and is electrically independent from the reactor protection system. There are no unreviewed safety questions involved in this modification.

PDC 93-28: Station Battery Replacement

Safety Evaluation: 2879, 2779

FSAR Section Affected: T8.6-1

This modification replaced the existing lead calcium batteries with newly specified lead calcium batteries sized to meet present and anticipated DC electrical loads. The change included replacing the battery racks. The battery size was increased to power larger loads for DC motor operated valves as a result of changes due to GL 89-10. Replacing the existing 125V DC and 250V DC station batteries with new Class 1E seismic storage batteries and associated seismic racks assures the batteries will be capable of supplying DC loads under normal and emergency operating conditions.

This change did not create the possibility of a new or different type of accident because the batteries are a one for one replacement except for the capacity and the essential functions of the batteries remained unchanged. This change did not create the possibility of a new or different type of accident because the essential functions of the batteries remained unchanged. This change did not reduce the margin of safety as defined in the basis of any technical specification because no technical specifications were affected. This change did not involve an unreviewed safety question.

PDC 93-38: DC MCC Breaker and Combination Starter Replacement Phase II

Safety Evaluation: 2839

FSAR Section Affected: 8.6.3

In response to NRC Generic Letter (GL) 89-10, the DC MCC breakers for motor operated valves (MOVs) were replaced to restore design margin and meet the design criteria requirements in the Pilgrim GL89-10 Program. The DC MCC breakers were replaced to improve (make faster) the drop-out time of the breaker contactors and to provide thermal-magnetic protection, in lieu of magnetic only, of the MOV cable/circuit wiring. The replacement fast acting contactors provide greater design margin for the MOVs. The thermal portion of the breaker will ensure the cable is protected from long term overload conditions while the magnetic portion of the breaker protects against short circuits. The sizing of the breaker took into consideration the maximum environmental temperature (130°F) and was derated accordingly. The breakers sizing criteria ensures the MOV will perform its intended safety function during any design basis events without tripping.

This change did not increase the probability or consequences of an accident because replacing the DC MCC unit assemblies with new assemblies containing new contactors and changing the control interlock function to utilize contacts off of the main contactor improves the dropout time of the MCC assembly. This ensured the contactor dropout time was improved and the auxiliary relays did not extend the dropout due to added resistance in the circuit. Therefore, this improved the reliability of the associated motor operated valve since the over-thrusting of the valve once the torque switch trips is reduced. Control, operation, and the load on the electrical system were not changed, and are bounded by existing analyses. This change did not create the possibility of a new or different type of accident because the new DC MCC unit assemblies reduced over thrusting of the MOVs which provides for both longer life and a reduced number of valve failures. This change did not reduce the margin of safety as defined in the basis for any technical specification because the margin of operability and reliability of the MOVs was increased by this change. The stroke time of the associated MOVs was not changed. This change did not involve an unreviewed safety question.

PDC 93-42: Relocation of Backup Air Supply for Torus Vacuum Breakers

Safety Evaluation: 2788

FSAR Section Affected: F10.11-1

This modification relocated the four normal and eight spare compressed air cylinders for the torus vacuum breaker isolation valves (AO-5040 A&B) from one elevation of the auxiliary bay to another. The original location required the transport of cylinders up and down stairs when they needed to be replaced. This change eliminated a concern for personnel safety when replacing these cylinders. This change moved the location of the air cylinders and did not affect the safety function of the vacuum breakers. This change maintained the post accident accessibility of the air cylinders. This change did not involve an unreviewed safety question.

PDC 94-09: Recirculation Flow Control System Addition of Scoop Tube Positioner Manual Lockup Switches

Safety Evaluation: 2884, 2822

FSAR Sections Affected: F7.9-2, F7.9-6

Manual lockup push-button switches and annunciators, one for each recirculation scoop tube positioner, were added to control room panel C904. This modification was installed as an aid to plant operators by eliminating the need to manipulate the scoop tube positioners from back panels in the control room.

This change did not increase the probability or consequences of an accident because the change only affected non-safety related circuits and components and is not connected to any controlling circuit. This change decreased the severity of speed transients by allowing faster operator response to equipment malfunctions. This change did not create a new or different type of accident because no new failures have been introduced. This change did not reduce the margin of safety as defined in the basis for any technical specification because no technical specification was affected. This change did not involve an unreviewed safety question.

PDC 94-10: Add Relays to Delay Drywell Unit Cooler Start on UAT Trip

Safety Evaluation: 2814

FSAR Section Affected: 5.2.3.7

This change installed two Agastat type DSC time delay relays into Panel C61 to delay the pick up of relays SCRXA and SCRXB, to add an approximate 45 seconds time delay to the starting of the drywell unit cooler fans that are in the "Standby" mode upon UAT breaker trip. This will delay the starting of the drywell unit coolers beyond when the other large motors have started, thereby improving the bus voltages to more acceptable levels for MOV operation. This change improved bus voltage to certain MOVs.

This change did not increase the probability or consequences of an accident because it is an improvement and totally contained in a non-safety related circuit. This improvement to the non-safety related circuit benefits a safety related circuit. This change did not create the possibility of a new or different type of accident because it involved only a non-safety related circuit. This change did not affect the margin of safety as defined in the basis of any technical specification because no technical specifications were affected. This change did not involve an unreviewed safety question.

PDC 94-16: LP Rotor Replacement

Safety Evaluation: 2909

FSAR Section Affected: 11.2.4

This modification replaced Pilgrim's turbine low pressure rotors to address stress corrosion cracking of the shrunk-on wheel axial keyways and the wheel dovetails near the bucket entry slot on the original rotors. Significant Erosion/Corrosion of the inner casing and diaphragms also warranted the replacement of the LP rotor inner casings and the L-0, L-1 diaphragms.

This change did not increase the probability or consequences of an accident because it reduced the probability of a wheel burst and subsequent missile generation at normal running speeds. A wheel burst and missile generation accident has been previously evaluated in the FSAR and therefore this replacement will not create the possibility of a new or different type of accident. The rotor replacement did not reduce the margin of safety as defined in the basis for any technical specification. Therefore, this change did not constitute an unreviewed safety question.

PDC 94-27: CRD Air Header Pressure Reduction

Safety Evaluation: 2836

FSAR Sections Affected: F3.4-9 and 7.2

This modification installed equipment to control the normal air pressure in the scram pilot valve air header (SPVAH) at a lower setpoint. This equipment also limits the peak air pressure in the SPVAH during transients and accidents to assure improved scram time performance. This modification affected the instrument air system and the control rod drive (CRD) hydraulic system. The instrument air system does not have a safety function. Safety related components that require instrument air to function during normal operation are designed to fail safe on the loss of air or are provided a safety related air supply that is stored in a local accumulator. The CRD hydraulic system has a safety function to control rod movement under normal conditions and when a reactor scram signal is received. This modification had no impact on the normal operation of the CRD hydraulic system. This modification affects the CRD hydraulic system response during a scram. When a scram signal de-energizes the scram pilot valves, the lower initial SPVAH air pressure allows the pressure in the scram solenoid actuator to quickly reach the pressure at which the valve starts to open, thereby allowing each CRD to begin movement sooner and decrease the scram insertion time.

This change did not increase the probability or consequences of an accident because the lower pressure remained within the bounds of the original specifications and no credible failure mode was created that would adversely impact the scram function. Sufficient redundancy of equipment important to safety was provided and reliability was not compromised. This change did not create the possibility of a new or different type of accident because a SPVAH air pressure increase is an existing failure mode of the instrument air system. Also, potential failures of the instrument air system are not accident initiators. Thus, this modification increases the margin of safety by decreasing scram insertion times. Therefore, this change did not constitute an unreviewed safety question.

PDC 94-35: Recirculation Pump Speed Controller

Safety Evaluation: 2904

FSAR Section Affected: 7.9

This change replaced the recirculation flow (speed) control system analog control modules with programmable digital controllers. It also eliminated the "master controller" and its feedback link from the turbine control system. This change replaced obsolete equipment that had experienced difficulties due to wear with new, state-of-the-art digital equipment such that the safety functions of the system were enhanced.

Although the circuits affected by this modification are non-safety related, the transient/accident analyses credit coast down of the MG sets/recirculation pumps. Therefore, the electrical/mechanical coupling of these devices post-accident is crucial. This change did not increase the probability or consequences of an accident because this modification affected only the speed control circuits and not the components required to effect coast down. Also, there is no interface with any equipment important to safety. This modification did not cause an accident of a different type than previously evaluated. No new types of failures were introduced, thus no new types of accidents could result. No technical specifications were impacted by this modification, therefore the bases for any technical specification were not affected. Therefore, this change did not constitute an unreviewed safety question.

PDC 94-38: Replacement of 345 KV Switchyard Breaker

Safety Evaluation: 2881

FSAR Section Affected: 8.2

This design change replaced the ACB 104 Model ATB-7 breaker to improve reliability and availability of the 345 KV switchyard. The replacement breaker is a new state-of-the-art SF6 breaker design. The new type of breaker design has been installed at other utility substations and proven to be reliable. Also, spare parts for the ATB-7 breakers were not readily available. Minor conduit rework was also required to accommodate the new breaker control cabinet. Additionally, a junction box was installed to facilitate termination of existing field cables. The new breaker is rated at 2000 amps continuous. The new breaker trip coil is rated at 14.4 amps. The existing ACB 104 trouble alarm was replaced by low air and low SF6 alarm. This change was made to improve switchyard reliability and availability.

This change did not increase the probability or consequences of an accident because it did not impact systems, structures, components, functions, or design capabilities. It also did not prevent any safety function from being fulfilled. Also, this change reduces the loss of offsite power events because of the new breaker performance and reliability. This change did not create the possibility of a new or different type of accident because the breaker operation remains unchanged and no new failure modes are introduced. The modification had no change in logic or operation of the AC power system. This change did not reduce the margin of safety as defined in the basis of any technical specification because no technical specifications were affected. This change did not constitute an unreviewed safety question.

PDC 94-50: Replacement of 345 KV Switchyard Breakers

Safety Evaluation: 2901

FSAR Section Affected: 8.2.2.5

This change replaced the existing ACB 102, 103, and 105 Model ATB-7 breakers to improve reliability and availability of the 345 KV switchyard. The replacement breakers are new state-of-the art SF6 breaker design. The new type of breaker design has been installed at other utility substations and proven to be reliable. Also, spare parts for the previous breakers are not readily available. This change was a replacement in kind with the exception of the breaker continuous and trip coil ratings.

This change did not increase the probability or consequences of an accident because it did not impact systems, structures, components, functions, or design capabilities. It also did not prevent any safety function from being fulfilled. This change did not create the possibility of a new or different type of accident because the breaker operation remains unchanged and no new failure modes are introduced. The modification had no change in logic or operation of the AC power system. This change did not reduce the margin of safety as defined in the basis of any technical specification because no technical specifications were affected. This change did not constitute an unreviewed safety question.

PDC 95-05: Degraded Voltage Protection Upgrades

Safety Evaluation: 2977

FSAR Section Affected: 8.4.6

This modification installed a pair of degraded voltage relays, and their associated time delay on dropout auxiliary relays and test switches, in the auxiliary cubicle of 480V buses B1 and B2. When both degraded voltage relays trip, they will cause the 480V swing bus B6 to be tripped from its supply source and seek the alternate (undegraded) source. This modification builds onto the present scheme for complete loss of voltage which controls auto transfer of bus B6 and therefore will retain the necessary separation of controls between bus B1 and bus B2.

This modification also installed a timing relay into panel A504 (4.16 Kv), set at approximately 15 seconds, to be energized whenever the degraded voltage relays operate. Once the timing relay is energized, if the degraded voltage relays reset due to rising voltage, relay 127-504X (existing) will stay energized for the full 15 seconds which is sufficient time for the emergency diesel generators or if necessary the shutdown source, to energize the bus to prevent cycling.

This change did not increase the probability or the consequences of an accident previously evaluated because the net effect of the change was to increase the availability of adequate voltage levels to the safety buses and to increase the reliability of the safety buses. This change did not create the possibility of a new or different type accident of a different type previously evaluated because the nature of the changes did not introduce new failure modes. This change did not reduce the margin of safety as defined in the technical specification because the margin of safety is increased. Therefore, this change did not constitute an unreviewed safety question.

PDC 95-06: Emergency Diesel Generator Loss of Field and Field Ground Protection

Safety Evaluation: 2987

FSAR Section Affected: 8.5.3

The emergency diesel generators (EDG) did not have a loss of field protection nor did they have field ground detection. This type of protection is standard for diesel generators of this size. This change installed a "loss of field" relay to the protection circuits of each EDG which is capable of tripping the generator output breaker only when the EDG is being tested in parallel with offsite power sources. If an emergency start signal is present, the tripping action of the loss of field is blocked. The relay was seismically mounted. This change also added a field ground detection relay to the detection circuits of each EDG which was wired to alarm only. The relay was installed to safety related requirements.

This change did not increase the probability or consequences of an accident because the net effect of the change was to increase the availability of the onsite and offsite ac power supplies to the safety buses. It also increased the reliability of the safety buses due to the loss of field relays providing an increased level of protection during periodic testing and increases the reliability of the field ground detection relays for detecting previously undetected grounds before equipment failure. This change did not create the possibility of a new or different type of accident because the net effect of the changes did not introduce significant new failure modes. This change did not reduce the margin of safety as defined in the basis of any technical specification because the margin of safety was increased. This change did not involve an unreviewed safety question.

PDC 95-12: Replace Dampers AON-102 and AON-103

Safety Evaluation: 2911

FSAR Section Affected: 10.9.3.7.2

This change replaced the air operated fan inlet dampers AON-102 and AON-103 on the salt service water pump cubicle exhaust fans with manually positioned inlet dampers. This was necessary due to a history of maintenance problems associated with the air operated dampers.

This change did not increase the probability or consequences of an accident because it did not adversely affect any accident mitigators and the ventilation system continues to provide adequate cooling for the salt service water pump cubicles. This change did not create the possibility of a new or different type of accident because it did not create any new potential accident initiators and did not adversely affect any equipment important to safety. This change did not reduce the margin of safety as defined in the basis for any technical specification because the change did not degrade or adversely affect any equipment or systems covered by the technical specifications. This change did not involve an unreviewed safety question.

PDC 95-26: Steam Leak Detection Setpoints

Safety Evaluation: 2958

FSAR Section Affected: T7.3-3

This modification made the area temperature alarm setpoints and the emergency operating procedure (EOP) entry criteria the same. The temperature alarm setpoints were changed to the EOP-04 entry conditions in accordance with an INPO good practice. The new setpoints will alert the operator sooner of potential degrading conditions in the plant, assure long term environmental qualification of equipment located in the associated areas, and alert against small pipe breaks outside of containment not immediately identified by the leak detection isolation system.

This change did not increase the probability or consequences of an accident because the new setpoints are nominally set equal to EOP-04 entry values and this will ensure the operator notification of the entry condition. This earlier notification decreases the consequences of an accident. This change did not create the probability of a new or different type of accident since no new failure modes were introduced. This change did not reduce the margin of safety as described in the basis for any technical specification because the lower setpoints increased the margin of safety. Therefore, this change did not constitute an unreviewed safety question.

PDC 96-16: Salt Service Water Temperature Alarms

Safety Evaluations: 3107, 3088, 2990

FSAR Section Affected: F10.7-1

This change installed new meters in panel C4 that display the salt service water (SSW) temperature prior to the water entering the reactor building closed cooling water system heat exchangers. In addition, the meters contain a relay to allow an interface with the plant annunciator system for a high SSW temperature alarm.

Installation of the new meters and associated alarms did not increase the probability or consequences of an accident because this equipment is not related to any initiating events and this change did not affect any equipment necessary to mitigate an accident. This change did not create the possibility of a new or different type of accident because failure of the meters can not create any new failures or malfunctions. This change did not reduce the margin of safety as defined in the technical specifications because no technical specifications were affected. This change did not involve an unreviewed safety question.

PDC 96-27: HPCI and RCIC Turbine Exhaust Rupture Disc Failure Alarm Setpoint Change

Safety Evaluation: 3099

FSAR Section Affected: T4.7-2

This modification lowered the existing setpoint of the HPCI and RCIC turbine exhaust line rupture disc failure alarms in order to ensure detection of an inside disc failure during testing. This change was recommended by General Electric in SIL NO. 580. Because the new setpoints were outside the normal range of the existing pressure switches, the pressure switches were also replaced.

This change did not increase the probability or consequences of an accident because the new switch and setpoint change improves the ability to detect a rupture disc failure and the potential for a HPCI or RCIC system pressure boundary failure. The new switches are more accurate and have lower setpoints which provide better alarm reliability, therefore the alarm is less likely to malfunction over a greater range of HPCI and RCIC testing conditions. This change did not create the possibility of a new or different type of accident because the design configuration remained the same and there were no different types of equipment malfunctions. This change did not reduce the margin of safety as defined in the basis for any technical specification because there is no reference to these instruments or setpoints in the technical specifications. Therefore, this modification did not constitute an unreviewed safety question.

PDC 96-31: Modification of the Nitrogen Supply Valves

Safety Evaluation: 3059

FSAR Section Affected: F5.4-1

Slight leakage from the backup nitrogen supply into the drywell instrument header has occurred at times when the primary containment is de-inerted. To preclude frequent nitrogen bottle replacement, a new solenoid valve was installed in the drywell backup nitrogen supply line in order to permit isolation of the nitrogen cylinders during those times when nitrogen is not supplied to the drywell. Also the nitrogen makeup supply valve was replaced with an in-line solenoid valve and an upstream pressure regulator to maintain a set pressure in the nitrogen makeup supply line without the need for a control valve. This second change eliminated an operator work around on a previously automatic function.

This change did not increase the probability or consequences of an accident because there is no effect on the safety related portions of the nitrogen supply system and the safety related function of the applicable equipment was not affected. This change did not create the possibility of a new or different type of accident because accident analyses were not affected. This change did not reduce the margin of safety as defined in any technical specification because the technical specifications were not affected. This change did not involve an unreviewed safety question.

PDC 97-06: Drywell Spray Nozzles

Safety Evaluation: 3077

FSAR Sections Affected: 5.2, 14.5

This change increased the total number of spray nozzles on both the upper spray header located at elevation 54'-6" and the lower spray header located at elevation 33'-6". The lower spray header was modified to replace eight nozzle caps with orifice nozzles, increasing the total number of orifice nozzles from 104 to 112. The upper spray header was modified to replace sixteen nozzle caps with orifice nozzles, increasing the total number of orifice nozzle 104 to 120. The added orifice nozzles were arranged to preserve the symmetry of the spray pattern for efficient heat removal and effective scrubbing of fission products. This change returned the drywell spray flow rate to that assumed in the containment analysis under all conditions.

This change did not increase the probability or consequences of an accident previously evaluated because increasing the number of orifice nozzles has no bearing on the probability of any accident and increasing the spray rate decreases the consequences of an accident. This change did not create the possibility of a new or different type of accident because no new accident initiators or failures were created by this modification. This change did not reduce the margin of safety as defined in the basis for any technical specification because there is no margin of safety that depends on the drywell spray rate. Therefore, this change did not constitute an unreviewed safety question.

PDC 97-11: Resolution of Regulating Transformer Voltage Transients

Safety Evaluation: 3091

FSAR Section Affected: 8.8

This change replaced the microprocessor control unit (MCU), a 40 pin integrated circuit located on the tap control board (PC121) of each of the X55, X56, X57, and X58 transformers, with a new MCU that is programmed to allow the transformers to remain operating during undervoltage and overvoltage transients that would otherwise shutdown the transformers. The new MCUs will return the transformers to their voltage regulating mode within two cycles of the transient condition clearing. The modification causes the transformers to go to their highest ratio tap (undervoltage) or lowest ratio tap (overvoltage) during a transient that exceeds the transformers' range of regulation, so the output voltage can be maintained as close to 120 volts as possible during the transient.

This change did not increase the probability or consequences of an accident because it did not affect the ability of safety systems to successfully respond to an accident by preventing the loss of the automatic start capability of the salt service water and reactor building closed cooling water pumps. This change does not create the possibility of a new or different type of accident because it returns the transformers to an unregulated state under degraded voltage conditions and this is bounded by the degraded voltage design. This change did not decrease the margin of safety as defined in the basis of any technical specification because no technical specifications were affected. Therefore, this change did not constitute an unreviewed safety question.

PDC 97-15: Emergency Diesel Generator Ambient Air Temperature

Safety Evaluations: 3102, 3114

FSAR Sections Affected: 10.9.3.9

This modification changed the emergency diesel generator (EDG) jacket cooling medium from 50% glycol/50% water to 100% water during the months of June to September to provide greater heat removal during the warmer months. The water is treated with corrosion inhibitor.

This change did not increase the probability or consequences of an accident because the EDG jacket cooling system provides for improved engine capacity during all EDG loading conditions and the EDG will continue to provide adequate standby AC power during all accident conditions evaluated. The change did not create a new or different type of accident because the design configuration was not changed. This change did not reduce the margin of safety as defined in the basis for any technical specification because the heat capacity of the EDG is increased which provides additional margin against degraded performance. This change did not involve an unreviewed safety question.

Augmented Offgas System Pre-Filters

Safety Evaluation: 2851

FSAR Sections Affected: 9.4, T9.4-5, T9.4-6

This change removed the filter cartridges from the augmented off-gas (AOG) system pre-filters X-349 A/B. This was done because the AOG system had been encountering high differential pressure due to condensate accumulation. The purpose of the change was to reduce the system differential pressure and eliminate future personnel radiation exposure involved in replacing the filter cartridges.

This change did not increase the probability or consequences of an accident because accident initiators were not affected, the AOG is not credited for accident mitigation, and the change did not affect equipment important to safety. This change did not create a new or different type of accident because it did not affect any equipment important to safety. This change did not reduce the margin of safety as defined in the basis for any technical specification because no technical specifications were affected. Therefore, this change did not constitute an unreviewed safety question.

Change to 4160V Switchgear and 480V Load Center Periodic Maintenance Schedules

Safety Evaluations: 2991, 3097

FSAR Section Affected: T8.4-3

This changes the periodic maintenance schedules for the 4160V switchgear and 480V load centers to be consistent with the refueling cycle (24 month) and to make maintenance on breakers and associated equipment more cost effective while maintaining a high degree of reliability. This resulted in the development of a Comprehensive Maintenance Program to ensure all critical elements of the auxiliary power system continue to function reliably as designed. The new program was developed based on lessons learned from Pilgrim's operating history along with EPRI and manufacturer's recommendations. The four elements of the program are periodic cycling, comprehensive preventative maintenance, reliability monitoring, and program controls.

This change did not increase the probability or consequences of an accident because the net effect of the change was to maintain the electrical distribution system at the existing high level of operational integrity. This change did not create a new or different type of accident because it did not introduce any new failure modes. This change did not reduce the margin of safety as defined in the basis of any technical specifications. This change did not constitute an unreviewed safety question.

Revise FSAR Appendix A for ASME Code Requirements

Safety Evaluation: 2997

FSAR Section Affected: Appendix A

This change adopts ASME Section XI 1989 IWA-7000 which allows the use of later editions of the construction code if the differences are reconciled. ASME Section III 1989 will be used for safety Class 1, 2 and 3 components. The original plant was designed to B31.1 with augmented non-destructive examinations (NDE) for purchase and installation as designated in FSAR Appendix A. The exception to this was the reactor vessel and recirculation system which are unaffected by this change. The Pilgrim FSAR Appendix A was written prior to ASME III for pressure boundaries other than vessels. Therefore, Appendix A did not reflect the modern definitions of safety class 1,2, or 3. Also, improvements in NDE and materials technology were not reflected in Appendix A. This change does not change the accident analysis (pipe break) for those systems where the NDE level is revised.

This change did not increase the probability or consequences of an accident because the level of NDE is not considered in accident analyses. The original over-specification of requirements in the Pilgrim FSAR involved unnecessary testing beyond what is required by the General Design Criteria and current industry codes and standards. Piping integrity is not compromised by this change and margins of safety are therefore not reduced. No new failure mechanisms were introduced by the use of ASME Section III and ANSI B31.1. Failures are assumed in the safety class systems independent of the level of non-destructive examinations. This change did not reduce the margin of safety as defined in the basis for any technical specifications because no technical specifications were affected. This change did not constitute an unreviewed safety question.

On-line Maintenance Activities

Safety Evaluation: 2998

FSAR Sections Affected: G.3.2, G.3.3, G.3.4

This safety evaluation provided a clarification of the safety design basis for Pilgrim Station's on-line maintenance activities to assure compliance with NRC guidance on the use of technical specification Limiting Conditions for Operation (LCO) to perform planned maintenance. This evaluation also provided a disposition of the repair time rule as defined in the FSAR.

This change did not increase the probability or consequences of an accident previously identified because voluntary on-line maintenance activities are controlled by programs and procedures to ensure that plant safety is maintained and planned maintenance activities reduce the probability of a malfunction of equipment. This change did not create a new or different type of accident because planned maintenance activities introduce no additional or unique factors beyond these already present in corrective maintenance activities. This change did not reduce the margin of safety as defined in the basis of any technical specification because voluntary entry into a technical specification Limiting Condition of Operation is not prohibited by the technical specifications. Therefore, this change did not involve an unreviewed safety question.

SJAE Operating Steam Pressure Change

Safety Evaluation: 3010

FSAR Sections Affected: 11.4.12, 11.4.3.1, 11.4.3.1.1

This safety evaluation changed the steam jet air ejector (SJAE) operating steam pressure in the FSAR from 70 psig to a range of 60 to 70 psig. This change corrected an error in the FSAR to match actual plant operation.

This change did not increase the probability of occurrence of an accident previously evaluated in the FSAR because it did not affect any accident initiators and did not affect any equipment used to mitigate the effects of an accident. This change did not create the possibility of an accident of a different type that any previously evaluated because it did not introduce any new failure modes. This change did not reduce the margin of safety as defined in the basis for any technical specifications because there were no changes to the technical specifications. Therefore, this change did not constitute an unreviewed safety question.

Changes to FSAR Description of the After Condenser Drain

Safety Evaluation: 3011

FSAR Section Affected: 11.4.3.1.1

This safety evaluation changed FSAR section 11.4.3.1.1 to reflect the actual plant configuration. Prior to this change the FSAR stated (in section 11.4.3.1.1 second paragraph, last sentence) "The after condenser drain line is routed to the turbine building equipment drain sump". P&ID M210 shows that the after condenser drain is routed back to the main condenser. This discrepancy was found during a review of the FSAR. A review of superseded copies of P&ID M210 shows that the after condenser drain line has always been routed to the main condenser and was never routed to the turbine building equipment sump. The vendor manual for the main condenser recommends that the after condenser drains return to the main condenser.

This change reflects the configuration of Pilgrim by correcting an FSAR error. This change did not increase the probability of occurrence of an accident previously evaluated in the FSAR because no accident initiators were affected. This change did not create the possibility of an accident of a different type than any previously evaluated because it did not introduce any new failure of the after condenser. This change did not reduce the margin of safety as defined in the basis for any technical specification because there were no changes to the technical specifications. Therefore, this change did not constitute an unreviewed safety question.

Shrinkage and Gapping of Boraflex

Safety Evaluation: 3017

FSAR Section Affected: 10.3

Boraflex, installed in one of nine spent fuel storage racks in the spent fuel pool for reactivity control, was observed to have shrunk and developed gaps. This is a change from the original installed condition as described in the FSAR. Although the shrinkage and gapping reduce the reactivity control effectiveness of the Boraflex material, substantial margin exists. The ability to maintain $K_{eff} < 0.95$, as specified in Pilgrim Technical Specifications, remains. Though some degradation of the Boraflex material has been observed, it is capable of performing its safety function.

This changed condition does not increase the probability or consequences of an accident because substantial margin in Boron-10 poison inventory exists to assure that the spent fuel pool $K_{eff} < 0.95$. The change does not cause any malfunction of the Boraflex material's ability to perform its function of preventing the possibility of an accident. In the event of a postulated criticality in the spent fuel pool, the condition of the Boraflex material would neither increase nor decrease the postulated consequences. This change does not create the possibility of a new or different type of accident because the only accident postulated is a spent fuel criticality event and this has been evaluated. This change does not reduce the margin of safety as defined in the basis for any technical specifications. This change did not involve an unreviewed safety question.

Installation of Communication, Monitoring and Computer Cables

Safety Evaluation: 3023

FSAR Section Affected: 8.9.1

This change evaluated the future installation of computer, communication, and monitoring cables for temporary and permanent modifications without conduit or cable tray. The actual installation will be performed under other plant design changes. This type of installation is necessary due to cost, dose, and feasibility to install and support conduit/cable trays. The use of existing supports to add new conduit is not practical due to the extensive analysis required to evaluate additional loading. The installation is accomplished per applicable codes and design documents.

This change did not increase the probability or consequences of an accident because all cables installed without conduit will be non-safety related and will be for monitoring, communications or computer systems. The cables will carry very low level signals and low voltage power that produce minimal heat. The cables will not introduce electrical noise to any safety related low signal cables and will not start a fire due to short circuit or overload. This change will not create the possibility of a new or different type of accident. This change does not affect the margin of safety as defined in the basis for any technical specification because no technical specifications were affected. Therefore, this change did not constitute an unreviewed safety question.

Spent Fuel Pool Decay Heat Removal

Safety Evaluation: 3029

FSAR Sections Affected: 10.3, 10.4

This safety evaluation (SE) established acceptance criteria for refueling decay heat removal for the spent fuel pool and evaluated the methods and practices used for the bounding assumptions of a full core off-load for RFO-11. It supported the spent fuel pool decay heat removal methods and practices that were used during RFO-11. These activities employed various modes of operation of the residual heat removal and fuel pool cooling systems during cold shutdown and refueling conditions to provide decay heat removal for the reactor basin and spent fuel pool. Generic acceptance criteria used for evaluating fuel transfer requirements for future refueling outages were also included in this SE and were added to the FSAR.

This change is analytical in nature and is based on verified calculations and data; it did not adversely impact safety. This change did not increase the probability or consequences of an accident because there is no change in the way that decay heat removal equipment is utilized. This change did not create a new or different type of accident because the loss of shutdown cooling has been previously analyzed. This change did not reduce the margin of safety as defined in the basis for any technical specifications because no change to technical specifications was involved. This change did not involve an unreviewed safety question.

Use of Qualified Contractor Personnel for Fuel Loading and Unloading

Safety Evaluation: 3044

FSAR Section Affected: 12.4.1

This change allowed the use of contractor personnel as fuel movers during RFO 11. Industry experience demonstrates use of such contractor personnel does not degrade safety. This change did not increase the probability or consequences of an accident previously evaluated because the administrative controls and refueling interlocks to control core loading activities remained unchanged. This change did not create the possibility of a new or different type of accident because the core loading activities were unchanged. The use of contractor personnel to operate refueling equipment is not discussed in the basis for any technical specification. Therefore, this change did not constitute an unreviewed safety question.

Revise FSAR Section 10.8 for Fire Protection

Safety Evaluation: 3050

FSAR Sections Affected: 10.8.2, 10.8.3.1, 10.8.4.1.2, 10.8.4.2.1, 10.8.4.2.2, 10.8.4.3.1, 10.8.4.4, 10.8.4.5.2

This safety evaluation supported changes to the FSAR to reflect actual plant configuration and/or provide editorial corrections and clarifications. These changes were:

- Several Halon fire protection systems, described in the FSAR and no longer in service, were removed.
- A fire watch was required in the condenser bay (high radiation area) if the sprinkler system was declared inoperable. This is contrary to ALARA goals and is of little value from a fire protection standpoint. The fire hazards in the condenser bay do not change while it is locked, so establishing a fire watch is unnecessary. This has been removed.
- A yearly fire detection test on the smoke detectors in the augmented offgas building charcoal vault was required or they had to be declared inoperable. This is unnecessary because the room has a sprinkler system and performing the test during plant operations is contrary to ALARA goals. This has been changed to a test during refueling outages.

This change did not increase the probability or consequences of an accident because the changes did not affect any accident initiators or mitigators or affect any equipment important to safety. This change did not create the possibility of a new or different type of accident because it did not create any potential accident initiators. This change did not reduce the margin of safety as described in any technical specification because it did not adversely affect any equipment included in the technical specifications. This change did not involve an unreviewed safety question.

Changes to Refueling Interlock Surveillances

Safety Evaluation: 3053

FSAR Sections Affected: 7.6.3, 4, 5, 6

This safety evaluation supported a change to the FSAR text which clarified the distinction between the refueling interlocks and those interlocks that provide equipment protection. The change to the FSAR also clarified the difference between the once per cycle complete functional testing and the weekly functional test. Clarification of the system components and testing did not lessen required testing; rather two specific portions of the test provide a once per RFO logic test including separate elements of logic chains, while the weekly functional tests fulfill valid operational testing as described in technical specifications.

This change is primarily administrative and did not reduce surveillance testing, but clarified it. This change did not increase the probability or consequences of an accident because this change did not change the safety objective of the refueling interlocks. This change did not create the possibility of a new or different type of accident because this change clarified the differences between the refueling interlocks and the additional equipment protection interlocks. It also reduced unnecessary redundant testing while ensuring an adequate level of testing to ensure the equipment meets its design function. There was no physical change to plant equipment. The complete functional testing and redundant circuit checks are as described in the technical specification bases, therefore there is no reduction in the margin of safety as described in the bases for any technical specifications. Therefore, this change did not constitute an unreviewed safety question.

Installation of Dust Filters on Drywell Cooler Fan Units

Safety Evaluation: 3054

FSAR Section Affected: 5.2

This revised FSAR Section 5.2.3.7 to reflect that installation of dust filters at the inlet to each drywell cooler fan unit is not required for some drywell maintenance activities. Future installation of the dust filters will only be performed for the unit(s) which could be exposed to dust from maintenance activity. Compliance to the previous FSAR wording potentially could result in unnecessary radiation exposure since it required the filters to be installed for any maintenance activity in the drywell.

The purpose of this change was to reduce radiation exposure by only installing dust filters when necessary to protect the fan unit cooling coils. The drywell air cooling system does not perform any active safety related functions. The cooling coils do perform a passive safety related function in that the coils must maintain the pressure boundary integrity of the reactor building closed cooling water system (which flows through the coils). In the event that cooling coils are inadvertently subjected to dust to the point that the drywell cooling system heat removal capability is impacted, there is no impact on plant safety because the drywell air cooling system is not credited in response to any safety-related event and dust buildup on the coils will not affect the ability of the coils to maintain the pressure boundary integrity of the reactor building closed cooling water system. This change did not involve an unreviewed safety question.

Radiological Activities in the Redline Building

Safety Evaluation: 3055

FSAR Sections Affected: 9.5, 9.5.1.1, 9.5.1.2, 9.5.1.3, 9.5.1.4, 9.5.1.5, 9.5.1.6.2, 9.5.2, 10.8

This safety evaluation addressed the radiological aspects of the radiological activities that are conducted in the new redline access/egress and station services trash and laundry building. The new building contains a radiologically controlled area in which activities that involve the handling of radioactive material will take place.

The activities conducted within the redline building do not increase the probability or consequences of an accident. The building is external to the process buildings and contains no safe shutdown equipment. The potential impact that a fire in this building may have on safe shutdown systems in the adjacent process building is bounded by the current fire analyses. Airborne and liquid radiological releases from the site were previously analyzed and the maximum postulated releases from this building are bounded by those analyses. The building and activities conducted therein do not create a new or different type of accident because both airborne and liquid radiological releases from the site were analyzed and the maximum postulated releases from this building are bounded by those analyses. Also, a fire is the only postulated event that this building can cause and malfunctions due to fires have been analyzed. These activities do not reduce the margin of safety as defined in the basis of any technical specifications because there are no liquid effluent releases from this building and the administrative and physical controls to preclude the production and release of airborne radioactivity ensures that any airborne releases are a small fraction of the applicable 10CFR20 limits. Therefore, these activities do not involve an unreviewed safety question.

Change to Procedure 2.2.83 to Allow Let-down From the Reactor Pressure Vessel with the Feedwater System Out of Service

Safety Evaluation: 3064

FSAR Section Affected: 4.9.3

This change allows plant operators to establish a let-down from the reactor pressure vessel (RPV) through the reactor water cleanup system (RWCU) with both the filter demineralizers and the cleanup recirculation pumps out of service. This allows for control of the RPV water level with the feedwater system out of service.

This change did not increase the probability or consequences of an accident because the RWCU system downstream of the its primary containment isolation valves is not safety related and the mode of operation of the system described in this change is well within the analyzed bounds of system operation and does not exceed the analyzed limits of the system. This change did not create the possibility of a new or different type of accident because operation of the system within its design tolerances will prevent failures of the RWCU system and no new failure modes of safety related equipment was introduced by this change. This change did not reduce the margin of safety as defined in the basis for any technical specification because this change did not affect the operation of the RWCU primary containment isolation valves. This change did not involve an unreviewed safety question.

Jet Pumps

Safety Evaluation: 3084

FSAR Sections Affected: 3.3.8, 3.3.4.4

Inspections during RFO11 revealed various instances where the swing gate to restrainer bracket latching pins in various jet pumps are not fully engaged in the latching pin hole. Also, set screw gaps have been noted. This evaluation determined that jet pump integrity will be maintained during all design basis normal, transient, and accident conditions and that the jet pumps meet all design and licensing bases in the current configuration. Jet pump disassembly or failure as a result of a lack of contact between the restrainer bracket set screws and inlet mixers or misalignment of the restrainer bracket swing gates will not occur during any given operating cycle.

This change did not increase the probability or consequences of an accident because the design basis stresses remain below conservative allowable limits. The calculated stress levels and fatigue damage assessment for the existing condition are essentially unchanged from the values reported in the reactor vessel analysis of record. Structural integrity for design basis conditions is assured. The change did not create a new or different type of accident because jet pump integrity is maintained. This change did not reduce the margin of safety as defined in the basis of any technical specification because the jet pump integrity is maintained during all normal, transient, and accident conditions previously analyzed. This change did not involve an unreviewed safety question.

Restoration of Class I Piping Seismic Damping Values in FSAR

Safety Evaluation: 3085

FSAR Sections Affected: 12.2.3.5, T 12.2-3

This change restored the original design basis seismic damping values in the FSAR and revised all affected plant design calculations by applying the original FSAR damping ratio values and allowables. This change corrected an error in the FSAR by restoring the design criteria to those previously reviewed and approved by the NRC. Therefore, this change did not constitute an unreviewed safety question.

High Turbine Bearing Vibration Trip for Bearings 1 and 2

Safety Evaluation: 3089

FSAR Sections Affected: 7.11.3.3.6

Turbine shaft vibration is one of the variables monitored by turbine supervisory instrumentation. To prevent rotor, shaft, or bearing damage, a safety feature serves to automatically trip the turbine when measured vibration exceeds a preset limit. The turbine shaft high vibration trip provides this feature. The turbine trip system controls those components which constitute the second line of defense against turbine overspeed by permitting a rapid stop of steam flow into the turbine.

Turbine shaft vibration typically increases at critical rotor speeds during startup due to bearing packing rub. For the low pressure turbine bearings, vibration can rise above the levels set to initiate an automatic turbine trip. To eliminate the need to defeat the trip signal during startup and continue to provide protection against runaway vibration, this change raised the setting of the four bearings to a point above that where startup trips occur (raised from 12 Mils to 14 Mils).

This change did not increase the probability or consequences of an accident previously evaluated because the turbine supervisory instrumentation is not part of any safety related system. This change did not create the possibility of an accident of a different type than any previously evaluated because accident analyses do not apply. This change did not reduce the margin of safety as defined in the basis for any technical specification because the technical specifications were not affected. The original design concept described in the FSAR was not changed therefore this change did not constitute an unreviewed safety question.

Plant Startup Without the Main Generator Step-up Transformer

Safety Evaluation: 3093

FSAR Sections Affected: 8.2.1.1, 8.3.4.3

This change allowed starting the plant without the main generator step-up transformer in service. Backfeed capability through the unit auxiliary transformer would not available. However, power was available through the startup transformer and all the pertinent requirements of Technical Specification 3.9 were met.

This change did not increase the probability or consequences of an accident because it allowed the plant to startup without backfeed capability. This had no effect on the chance of losing offsite power and backfeed capability is not credited to supply power for any mitigating system in any accident analysis. This change did not create the possibility of a new or different type of accident because there are no new failure modes introduced and it did not affect any safety function nor system important to safety. This change did not reduce the margin of safety as defined in the basis for any technical specification because the ability to backfeed is in addition to the requirements of technical specifications. This change did not constitute an unreviewed safety question.

Water Treatment Module

Safety Evaluation: 3098

FSAR Sections Affected: 10.10.3.1, 10.10.3.2, 10.10.3.3, 10.10.4, F10.10-1

A new water treatment module was installed to replace a temporary treatment system. This equipment provides demineralized water to the condensate system using a reverse osmosis process verses cation/anion resin exchanger beds. The water quality to the condensate system exceeds the original plant water quality requirements listed in the FSAR.

This change did not involve an unreviewed safety question because the water treatment module is a non-safety system. It provides an important function, that of providing high quality water, but the water treatment system can not adversely affect any safety function or safety related system. This change did not involve an unreviewed safety question.