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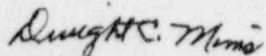
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Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
ANO-2 10CFR50.59 Summary Report

Gentlemen:

In accordance with 10CFR50.59(b)(2), enclosed is the Arkansas Nuclear One, Unit 2, 10CFR50.59 report for the time period ending November 20, 1995. This report contains a brief description of changes in procedures and in the facility as described in the Safety Analysis Report (SAR), tests and experiments conducted which were not described in the SAR, and other changes to the SAR for which a safety analysis was conducted, along with a summary of each safety evaluation.

Very truly yours,



Dwight C. Mims
Director, Nuclear Safety

DCM/dc

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ARKANSAS NUCLEAR ONE

**1995
ANO-2
10 CFR 50.59
REPORT**



ENERGY

ARKANSAS NUCLEAR ONE - UNIT 2
DOCKET No. 50-368
LICENSE No. NPF-6

10CFR50.59 REPORT

This report contains a brief description of procedure and design changes made at Arkansas Nuclear One - Unit 2 (ANO-2). These summaries describe changes made to the ANO-2 Safety Analysis Report (SAR) for which an evaluation was determined to be necessary. It also contains evaluations for tests conducted which are not described in the SAR. This report is applicable for the period from April 23, 1994, through November 20, 1995.

The safety evaluations included in this report were performed in accordance with 10CFR50.59 and determined that none of the changes resulted in an unreviewed safety question.

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SECTION I

PROCEDURE CHANGES

Standing Orders

Procedure 1000.026, Standing Orders, was no longer utilized to communicate directives of either an administrative or technical nature related to station operational activities and was deleted. Policies are communicated by either Operational Directives or Night Orders.

This procedure change affects ANO-1 SAR Section 12.5.1.D as well as the ANO-2 SAR Section listed below.

Affected SAR Section: 13.5.1.D

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the deletion of this procedure was an administrative change only and policies will continue to be communicated via Operational Directives or Night Orders; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the deletion of this procedure did not impact any plant equipment or any accidents previously analyzed in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change is administrative only and did not affect any margin of safety defined in the Technical Specification bases.

Steam Generator Water Chemistry Monitoring

This revision to the SAR deleted the requirement to hold at 30% power during power escalation if condensate dissolved oxygen is greater than 10 ppb. The basis for the limit was a requirement in the EPRI PWR Secondary Water Chemistry Guidelines that a number of chemistry parameters be within normal action level limits before exceeding 30% power. While it is important for parameters such as sodium and chloride to be reduced to near normal levels at low power since they will more readily migrate into crevices at higher power levels, the same justification does not hold for oxygen. This was recognized in Revision 3 of the EPRI PWR Secondary Water Chemistry Guidelines.

Affected SAR Table: 10.3-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change did not adversely affect secondary system corrosion rates, did not affect any assumptions made in evaluating consequences of an accident, and will have the net affect of reducing detrimental affects on the steam generators due to lower metal oxide transport; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not introduce any type of failure mode not previously evaluated; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change will not result in increased corrosion of steam generator tubes.

Reactor Coolant System Hydrazine Addition Calculation

Procedure 1604.039, RCS Hydrazine Addition Calculation, was revised to allow the addition of an alternate approved oxygen scavenger other than hydrazine to the primary system to reduce oxygen levels prior to startup on Unit 2. The toxicity of hydrazine, coupled with the temperature at which it effectively removes oxygen, resulted in the need for an alternative that is both less toxic and more effective as an oxygen scavenger at lower temperatures. Carbohydrazide was chosen due to its compatibility with Reactor Coolant System (RCS) materials.

Affected SAR Sections: 12.1.5, 9.3.4.2.4, 9.3.4.3.10

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since reactor coolant chemistry will continue to be maintained within prescribed limits, addition of carbohydrazide to the RCS will not result in an increase in the corrosion rates, and the use of carbohydrazide in the primary system will not produce a change in reactor coolant specific activity, pH, or contaminant levels; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since use of carbohydrazide will not create any new modes of failure and will not result in a change in the operating chemistry of the RCS outside that previously evaluated; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the addition of carbohydrazide to the RCS to remove oxygen prior to heatup will not result in the plant being operated outside any of the limits specified in the Technical Specification bases.

Fire Watch Program

This procedure revision added definitions for an "hourly" and "continuous" firewatch.

Affected SAR Sections: 9.D.1.1.C, 9.D.3.1.C, 9.D.5.1.C

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change only added the definitions of "hourly" and "continuous" for clarification and was administrative in nature; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change was administrative in nature and did not impact the operation of plant equipment; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change only added clarification.

Circulating Water System Operation

This change repositioned the circulating water pump motor coolant flow indicator bypass valves from closed to open. These valves are normally open to reduce motor winding temperatures and to prevent over-ranging flow indicators 2FI-1214 and 2FI-1223. This change also corrected the circulating water pump discharge valve logic by adding a note to indicate that the discharge valves 210 second opening sequence is automatically bypassed when starting the second circulating water pump.

Affected SAR Figures: 10.4-1, 10.4-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since changing the valve position to provide additional motor cooling flow to the circulating water pumps did not affect any activity that could initiate an accident and this new lineup did not change or degrade any actions that would be taken to mitigate the consequences of an accident; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change remained bounded by previously evaluated accidents and could not create a malfunction to any safety related equipment; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there is not margin of safety defined in the Technical Specifications bases regarding the Circulating Water System.

Circulating Water System Operation

This revision to the SAR changed the required position of the Domestic Water valves associated with gland and bearing flow in the Circulating Water discharge. Changing these valve positions to "throttled" will eliminate spurious nuisance alarms in the Control Room.

Affected SAR Figure: 10.4-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since throttling the Domestic Water valves provides better cooling for the Circulating Water pump seals and glands reducing the probability of component malfunction; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change in valve position did not create any new modes for failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety for the Circulating Water pumps or the Domestic Water System defined in the Technical Specification bases.

Fire Protection System Operators

This change allowed an exemption from checking the position of the fire water valves located in Containment during modes 1, 2, or 3. The Containment Building entrance is typically locked closed during these modes and access is controlled. Four of the six valves located in Containment have tamper switches which would alarm if the valves were not properly seated. Of the remaining two valves, one is locked open and is located upstream of the sprinkler system isolation valves. The other valve is maintained closed when in modes 1, 2, 3, or 4 and requires operator action if a fire is confirmed in Containment.

Affected SAR Section: 9D.2.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the valves located in Containment are aligned to provide fire protection upon opening Containment Isolation Valve 2CV-3200; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this exemption did not introduce any new modes of failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there was no margin of safety for the Fire Water System defined in the Technical Specification bases.

Generator Hydrogen System Valve

To comply with technical manual recommendations, the position of valve 2GG-9763F was changed from throttled to closed during power operations. This change will allow the vent alarm to function properly if the vent solenoid valve leaks or is opened.

Affected SAR Figure: 3.2-6

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the affected system was not credited with initiating or mitigating any previously evaluated accidents and the Generator Hydrogen System does not affect the function of the generator or the turbine; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change remained bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases concerning this change.

Change in Valve Position for Emergency Feedwater to Steam
Generator Sample Valves

This procedure change alters the valve position for Emergency Feedwater (EFW) to Steam Generator (SG) sample valves from open to locked closed. This change was based on the results of an engineering report which determined these valves to be containment isolation valves subject to GDC 57.

Affected SAR Figure: 10.2-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since samples are taken via these valves only during an outage when the SGs are on recirculation, there is no impact on the operation of the SG at power or previously analyzed accidents related to the EFW to SG sample valves, no effect on the ability of the SGs or EFW systems to fulfill their safety functions, and the change in valve line-up created no new malfunctions in equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the sample valves are not equipment important to safety and closing the valves enhances containment integrity; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the sample valves are not described in any Technical Specification basis.

Plant Protection System Response Time Test Channel D

This revision incorporated changes which enhanced the performance of the procedure and corrected errors discovered during the performance of previous tests. These changes included the division of the instructions into supplements which perform discrete segments of the test. Division of the procedure into segments allows portions of the test to be performed during non-outage time frames. Some segments of the procedure will be performed using a multi-channel data logger which was built specifically for use during Plant Protection System response time testing.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since performance of this procedure did not affect any components credited with initiating or mitigating any previously evaluated accidents and the data logger was used only to monitor trip indications during testing and would not prevent equipment from performing its design function; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the data logger could not cause a malfunction of the equipment to which it is connected; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the required channel isolation for the Reactor Protection System/Plant Protection System was maintained by the individual isolated input design of the data logger.

Valve Stroke and Position Verification

This procedure change revised the Operations "Valve Stroke and Position Verification" procedure to show Penetration Room Ventilation System (PRVS) filter cross-connect valves 2CV-8831-1 and 2CV-8832-2 as normally open.

Affected SAR Section: 6.5.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since opening the PRVS filter cross-connect valves was not evaluated as an accident initiator and the additional flow from the open cross-connect valves does not cause the fans to exceed their designed flow limits and will not impact the evaluated amount of leakage into the penetration rooms; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since opening the cross-connect valves is not an accident initiator and will have no detrimental effect on fan operation; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the PRVS is not defined in the basis of any Technical Specification.

ANO-2 Battery 2D-13 Performance Discharge Test

This maintenance procedure change added the option of applying a slightly higher voltage to 2D-13, the non-class 1E, non-safety related battery bank, during equalize charging.

Affected SAR Table: 8.3-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since 2D-13 is not safety-related, does not supply safety-related loads, and this procedure change does not change or degrade the operational parameters of this or any other battery or battery charger; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the safety-related battery banks will remain electrically separated from 2D-13 and 2D-13 will be tagged out while on equalize charge; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since 2D-13 is not mentioned in the Technical Specification Bases.

Sodium Hydroxide Tank Sampling

This procedure revision renamed the previous "alternate" sample point to the "normal" sample point for the Sodium Hydroxide Tank. Due to the difficulty in accessing the "normal" sample point located in the Elevation 329 southwest valve gallery, the "alternate" sample point on the recirculation path has been routinely used in the past with no identified problems. It was determined that a second sample point was unnecessary.

Affected SAR Figure: 6.2-17

Section: 6.2.2.4.1.E

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change did not alter the function or operation of the Sodium Hydroxide Addition System; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the previously accepted tank contents, solution concentration, volume and temperature, and pump delivery flow rate were not altered by these changes; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the solution concentration concerning the Sodium Hydroxide Addition Tank are still determined using a previously approved sample point.

Operation of the Molar Ratio Control System

The Molar Ratio Control (MRC) System was designed to enhance plant established water chemistry guidelines. The MRC System injects ammonium chloride into each feedwater header downstream of the main feed pumps in order to maintain the cation-to-anion ratio within established guidelines while maintaining sodium and chloride as low as possible. Procedure controls also require manual isolation of the MRC System within one hour following a plant trip and just prior to a normal plant shutdown to prevent concentrating ammonium chloride in the feedwater trains at levels which could result in detrimental effects to the system.

Affected SAR Sections: 10.3.5, 10.4.7.2, 5.5.2.3.4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since operation of the MRC System will not impact any of the initiating or mitigating components or systems previously analyzed in the SAR, and controls are in place to prevent concentrating ammonium chloride in the feedwater trains at levels which could result in detrimental effects to equipment and systems important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since injection of ammonium chloride allows the molar ratio to be controlled so that near-neutral steam generator crevices can be achieved, thereby improving the integrity of the steam generator; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the injection of ammonium chloride into the secondary water will allow the molar ratio to be controlled in a band to achieve a near-neutral pH in the steam generator crevices which is expected to control intergranular attack and stress corrosion cracking initiation and growth resulting in less corrosion of the steam generators.

Sampling Unit 2 Circulating Water

This procedure change added instructions for using a new sample point for sampling the Circulating Water (CW) coming from the condenser at the Cooling Tower and addressed sampling from the discharge of the Service Water inlet pH probe. This change also deleted a statement that sampling of the CW is as shown on SAR Figure 10.4-1 since that statement was unnecessarily restrictive.

Affected SAR Section: 9.3.2.2.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the operation of the CW System was not affected and no equipment important to safety was impacted; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the addition of new sample points did not affect operation of the CW System and did not create any new modes of failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since sampling of the CW System was not addressed in the Technical Specification bases.

SECTION II
DESIGN CHANGES

SPING - Boric Acid Mix Room Heating, Ventilation, Air Conditioning

This design change package added non-safety related heating and air conditioning equipment in the Super Particulate Iodine Noble Gas (SPING)-Boric Acid Mixing Room. This equipment was added to relieve heat stress on operations and maintenance personnel entering the room and to avoid overheating the SPING radiation monitoring equipment located in the room. This equipment is powered from a non-Q source and failure of the equipment would not affect the operation and safe shutdown of the plant.

Affected SAR Figures: 1.2-2, 1.2-8, 3.5-6, 8.3-66, 8.3-67, 9.4-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the Heating, Ventilation, Air Conditioning (HVAC) System was not credited with initiating or mitigating any previously analyzed accident. This change provided a more stable environment for the SPING units thereby reducing the potential for malfunction and installation of this equipment did not adversely affect the chemical addition system in the room; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the addition of this equipment did not change the function or operation of the chemical addition system or the SPINGs; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no safety system or safety related component interfaces resulting from the addition of the HVAC System.

Upgrade of Security Cardreaders and Multiplexers

This design change package replaced the obsolete cardreader at the Intake Structure and changed the electrical component tag numbers.

Affected SAR Figure: 8.3-54

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the affected equipment was not credited with initiating or mitigating any of the accidents previously analyzed in the SAR and these changes did not affect the operation characteristics of any of the safety equipment located at the Intake Structure; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these changes remained bounded by previously evaluated accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since these changes did not affect the operation of any safety related equipment in the Intake Structure and any related margins of safety were unaffected.

Appendix A Fire Barriers

This design change package upgraded seventeen ANO-2 fire barriers from "Insurer" to "NRC Required" due to Amendments 99 and 132 to Technical Specification 3/4.7.11 and Amendment 10 to SAR Appendix 9D in order to comply with the requirements of Appendix A to Branch Technical Position APCSB 9.5-1. Nine 3-hour fire dampers were replaced with 3-hour rated UL labeled fire dampers certified by shop tests to close against design air flow conditions. Lower sprinkler branch lines in the Lube Oil Reservoir Room, Equipment Area, and Lube Oil Storage Tank Room were replaced to comply with the clearance requirements of NFPA-13-1991, Section 4-4.1.4, and also to allow sufficient clearance for sprinkler head removal. Fire barrier and structural steel fireproofing was added and several fire doors and penetration seals were repaired or replaced, as necessary, to comply with acceptance criteria.

Affected SAR Figure: 9.4-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification improved the system's isolation reliability to confine or adequately retard fire and smoke from spreading to adjacent areas; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not introduce additional components, or components that are fundamentally different in design, than ones being replaced or repaired and did not create new or different types of accidents than those previously evaluated; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification did not affect any bases defined in the Technical Specifications.

Service Water System Hammer Mitigation

This design change package was implemented to protect all Service Water (SW) System components from severe water hammers caused by column separation and rejoining due to loss of offsite power. Service and Auxiliary Cooling Water (ACW) equipment and piping located outside of containment was protected from voiding by the addition of air and vacuum valves in the discharge piping of the equipment. A "slow-refill" system was installed to protect the containment service water cooling coils and associated piping by reducing the rejoining velocity and maintaining column rejoining forces within code allowable limits.

Affected SAR Figures: 3.2-3, 3.2-4, 7.4-2, 8.3-11, 8.3-60, 8.3-65, 9.2-1
Sections: 6.2.1.3.3, 6.2.1.3.4, 9.2.1.2.3.7
Table: 6.2-26

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these modifications protect the SW and ACW Systems from severe water hammer and adverse system interactions thereby enhancing the capability to mitigate any accident requiring SW cooling; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these modifications remained bounded by existing accident analyses; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since these modifications did not cause any system to exceed allowable limits as described in the Technical Specification bases.

Low Pressure Safety Injection Valve Replacement

This design change package replaced two Low Pressure Safety Injection (LPSI) valves with new 6" Anchor-Darling angle globe valves equipped with Limitorque SMB-2 actuators and 80 ft-lb motors. The old valves were determined to be marginal in their ability to serve as a part of the reactor coolant pressure boundary. The new valves were oriented such that Reactor Coolant System (RCS) pressure is applied above the seat assuring positive sealing without manual action under all postulated differential pressure conditions.

Affected SAR Figures: 6.3-2, 8.3-13, 8.3-9
Sections: 5.5.12, 9.3.6.2.2
Tables: 3.2-6, 3.9-6

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the valves installed by this modification function in a manner identical to the valves that were replaced and possess the same capabilities to function in accident mitigation; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not change the function of the present system or introduce the possibility of any new malfunction of equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specification bases did not address margin of safety related to the type of valves installed in the LPSI lines and the new valves maintain the ability to be closed remotely from the Control Room in the event of check valve leakage such that they will be able to seal against maximum RCS pressure without local manual operator action.

Turbine Generator Temperature Monitoring

This design change package installed a Turbine Generator Temperature Monitoring System on the Unit 2 Turbine Deck to replace the old Turbine Generator Datalogger. The new system provides the capability to monitor and capture historical data from selected existing turbine generator thermocouples and resistance temperature detectors via the plant computer. In addition, four temperature related reference points and a cabinet temperature point were provided to the plant computer.

Affected SAR Figures: 8.3-2, 8.3-22

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this equipment was not evaluated as an initiator or mitigator of an analyzed accident and is not considered equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the addition of this equipment did not introduce any new modes of failure for equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases dependent on the equipment related to turbine generator temperature monitoring by the plant computer.

Refueling Water Tank Recirculation Isolation Valves

This design change package installed two normally open, Engineered Safeguards actuated, fail-closed air operated gate valves to allow isolation of the seismic category I portion of the Refueling Water Tank (RWT) boundary piping from the seismic category II portion of the Fuel Pool Purification System (FPPS). This modification allows mixing of the RWT inventory using a pump in the non-safety related FPPS without violating the design basis.

Affected SAR Figures: 6.2-17, 8.3-59, 8.3-64, 9.1-1, 9.3-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not impact the capability to assure adequate RWT inventory for safety injection, did not increase the challenge to any safety system assumed to function in previously analyzed accidents, and met or exceeded original design specifications for material and design; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since addition of the two valves did not introduce failure modes different than those previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases that were impacted by this modification.

Alternate AC Generator

This design change package constructed the Alternate AC (AAC) Generator Building and installed the engine generator set and its support systems. The power distribution system associated with the AAC Generator was mounted in the Turbine Building. The AAC Generator System provides backup power in the event of a Station Blackout (SBO). SBO refers to the complete loss of alternating current electric power to the essential and nonessential switchgear buses due to loss of offsite power concurrent with turbine trip and failure of the onsite emergency AC power system.

Affected SAR Sections: 1.2.2.10, 1.2.2.4, 8.1.4, 8.3.1.1.3, 8.3.1.1.8.5, 8.3.3
Table: 8.3-7

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this self-contained diesel generator does not interface with any plant system credited with initiating an accident and does not change or prevent any actions assumed to occur in response to an accident; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the installation of this power source was bounded by previously analyzed accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the addition of this standby power generation system increased the ability and flexibility of the onsite emergency power distribution system to respond to operational events and accidents, thereby increasing the margin of safety.

Replacement of Vibration and Loose Parts Monitoring System

This design change package replaced the Vibration and Loose Parts Monitoring System (VLPMS) components in Cabinet 2C19 with a new network compatible personal computer based system. The new system utilized the existing piezoelectric sensors and preamps to continuously monitor the major reactor primary system components for loose parts and vibrations outside the normal range.

Affected SAR Figure: 5.1-3
Section: 5.2.8.8

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the VLPMS has no vital safety function, the function of the new VLPMS is identical to the original VLPMS, and the new VLPMS provides enhanced signal discrimination and analysis capabilities; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since all interfaces with safety-related equipment remain passive and no new failure modes were introduced that would affect safety-related equipment; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there was no margin of safety related to the VLPMS defined in any Technical Specification bases.

Plant Monitoring System Points

This design change package added fifty-four new points to the Plant Computer representing inputs from sixteen Unit 2 systems and one Unit 1 system. Two new remote I/O multiplexers were installed for the Circulating Water System points and a subset of the Service Water System points. Three ITT Barton transmitters located in the Service Water Intake Structure, providing only a contact closure or digital indication, were replaced with Johnson Yokogawa DP transmitters to provide analog indication. Three Dixson indicators were installed at the Service Water Intake Structure to provide local indication and the setpoint function for the Control Room annunciator. This package also added two new remote I/O chassis, nine new Dixson Indicators (six are Sigma replacements in the Control Room), three new Johnson Yokogawa DP transmitters, two new cabinets, one new rack, and three new MDR relays.

Affected SAR Figures: 10.2-4, 10.4-1, 10.4-2, 10.4-7, 11.2-1, 11.2-2, 3.2-6,
5.1-3, 6.2-17, 6.3-2, 8.3-54, 8.3-67, 8.3-76, 8.3-77,
9.2-1, 9.2-6, 9.2-7, 9.3-1, 9.3-4, 9.4-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not adversely affect any systems or components credited with initiating or mitigating previously evaluated accidents and did not adversely affect functions performed by safety-related equipment; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety for the Plant Computer defined in the Technical Specification bases.

Steam Generator Cavity Platform Modifications

This design change package removed/modified existing platforms and added new platforms directly adjacent to both Steam Generators (SGs). This facilitated SG area entry and exit and reduced the need for temporary scaffolding during outages for conducting eddy current testing. In addition, existing electrical equipment for temporary outage setups was removed or replaced in some of the SG cavity areas.

Affected SAR Table: 6.2-17B

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these modifications were structural in nature and did not come into contact with any piping that has been postulated to break, these electrical components did not affect equipment important to safety or the mitigation of any accident, and the amount of material added to containment did not significantly change hydrogen generation, heat sinks, containment free volume or cavity pressures that would increase the consequences of an accident; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not alter the design function of the platforms or the electrical power distribution system in any way that would create new failure modes or malfunctions of equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since these modifications did not affect the bases of any Technical Specification.

Control Room Console Replacement

This design change package removed the existing 2C69 Operator Console, along with the equipment mounted in it, and replaced it with an expanded console (2C69B) used primarily as an operator workstation. The Safety Parameter Display System (SPDS) monitoring equipment located in 2C69 was relocated to a new cabinet, 2C69A.

This DCP affected Fire Hazards Analysis Drawing FP-2102 as well as the SAR information listed below.

Affected SAR Figure: 3.5-15
Section: 8.3.1.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since no credit was taken in existing analyses for automatic actuations or actions by the Operations staff from the 2C69 console, the SPDS equipment was relocated while the unit was in refueling mode and SPDS was not required to be operable, and no other equipment important to safety was impacted by this modification; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since system design was unaltered and there was no negative impact on safety-related equipment or systems; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specification bases did not establish a margin of safety for any equipment mounted in the 2C69 console.

Main Chiller Replacement

This design change package replaced the main chillers with new chillers that utilize R-22, an EPA acceptable alternative to the previously used CFC refrigerant, R-11, scheduled to be banned from production. The replacement chillers are York International Rotary Screw Liquid Chilling Units. Each chiller has a capacity of 1200 tons of refrigeration and utilizes high pressure HCFC refrigerant. A new chilled water cooling coil was installed in the supply ventilation ductwork to accommodate the additional heat load of the units' open drive motors. An atmospheric refrigerant monitor, with audible and visual alarms, was placed in the room to warn personnel of the presence of refrigerant vapors. A new handswitch was added to allow operation of either chiller with either chilled water pump and the main chilled water pumps' start circuitry was modified to allow starting the standby pump prior to securing the running pump. New starters were installed in the remote starter cabinets and one cabinet was relocated. Auxiliary Cooling Water and Chilled Water piping was modified to optimize access to the vital areas of the chiller skids.

Affected SAR Figures: 1.2-4, 1.7-1, 3.2-3, 3.2-4, 3.5-9, 8.3-4, 8.3-61

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not impact equipment credited with initiating or mitigating any previously analyzed accident, did not affect the function or performance of the main chilled water system, and did not adversely impact any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification installed equipment of similar form and function and did not alter the extent, type, or quality of interaction between the main chillers and equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the ability of the main chillers to support maintaining normal containment pressure, temperature, and humidity within established limitations was not affected by this modification.

Control Room Cabinet Fusing to Replace Fiberglass Sleeving

This design change package installed circuit protective devices (fuses) in certain non Class-1E circuits entering the Main Control Board consoles for the purpose of removing the requirement for use of fiberglass sleeving as a separation barrier in the cabinets. The fuses will prevent faults occurring in the non Class-1E wiring from degrading the Class-1E wiring in close proximity.

Affected SAR Figures: 8.3-19, 8.3-26
Section: 8.3.1.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the lack of cable separation was not evaluated as an initiator of an accident, fiberglass sleeving was not used for separation between redundant Engineered Safety Features (ESF) circuit wiring, and the use of fuses instead of fiberglass sleeving did not impact equipment important to safety or introduce any new failure modes; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the removal of the requirement for use of fiberglass sleeving and the use of circuit protective devices to prevent thermal damage to circuit wiring did not introduce a malfunction into any area which was not bounded by previous analyses; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the requirement for use of fiberglass sleeving was not mentioned in the Technical Specification bases and this change did not reduce the margin of safety concerning redundant ESF channel separation.

Controlled Access Modifications

This design change package removed interior block walls in the Unit 2 Controlled Access area and converted the area to standard office cubicles with standard office furniture. Additional computer, phone, and electrical connections were installed. The restrooms located in this area were removed and all plumbing was capped. The area behind the Health Physics (HP) counter was converted to a dress out room and the storage area in Room 125 was converted to an HP survey instrument storage and issue area.

Affected SAR Figures: 1.2-3, 1.2-5, 12.1-11, 12.1-5, 12.1-9

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not affect any operating requirements, controls, pressure retaining requirements or boundaries, or safety functions assumed in the cause, occurrence, or mitigation of the accidents postulated in the SAR; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not affect any design, construction, or operating assumptions used to develop the accidents evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there are no specific margins of safety associated with this modification defined in the Technical Specification bases.

Service Water System Corrosion Inhibitor Injection System

This design change package made permanent the temporary Service Water (SW) System Corrosion Inhibitor Injection System. This Chemical Injection System is non-safety related and is not physically connected to the SW System. It is used to inject polymers and corrosion inhibitors into the service water bays in order to suspend mud and silt to minimize their deposition into the SW System. Operation of the SW System is not affected by, or contingent upon, the operation of the Chemical Injection System.

Affected SAR Figures: 1.2-1, 2.4-8, 2.5-17, 9.2-1
Section: 9.2.1.2.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the SW System was not evaluated as an initiator, the corrosion inhibitors and polymers protect components important in mitigating accidents, and the addition of these chemicals does not introduce new failure modes for equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification met or exceeded all design requirements of the original system and did not introduce failure modes different than those already evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the chemical addition system was designed to preserve the integrity of the SW System and will maintain or increase the margin of safety provided by the SW System.

Waste Concentrator Heating Tube Bundle

This portion of the design change package removed a section of abandoned concentrator piping just south of the feedwater heaters and sealed the piping penetration into the Old Startup Boiler Room. The removed Waste System piping was connected to the old startup boiler deaerator as a condensate drain line from the waste concentrator heating tube bundle. Condensate from the tube bundle now discharges to the Unit 1 and Unit 2 condensers.

Affected SAR Figure: 11.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the waste concentrator heating tube bundle condensate line to the old startup boiler deaerator was not credited with initiating or mitigating any of the accidents previously analyzed in the SAR and was not associated with any safety related equipment or systems; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this section of piping did not support or provide services to any safety related equipment; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases related to cutting and capping the waste concentrator heating tube bundle condensate line.

High Pressure Safety Injection Valve Replacement

This design change package replaced four of the eight High Pressure Safety Injection (HPSI) isolation valves with new, smaller valves and added a manual globe valve in series with each of these new valves. The new design consists of one motor operated valve in each line which will open fully when a signal is received and a manual throttling valve in each line which has been throttled initially to the appropriate position and locked in place. The overall flow characteristics of the HPSI System were unchanged by this modification.

Affected SAR Figures: 6.3-2, 8.3-13, 8.3-9

Table: 15.1.13-5

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the new injection isolation/throttling valve arrangement did not degrade the reliability, function, or operation of the HPSI System; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these modifications met applicable code and quality requirements and remained bounded by those accidents previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the new manual valves were throttled to produce the same system balance as was previously maintained and that balance is confirmed by surveillance testing which meets the requirements of the Technical Specifications.

Containment Building Electrical Penetrations

This design change package replaced the Amphenol-Sams electrical penetration feedthrough modules with new Conax Buffalo feedthrough adapter module assemblies for four Containment Building electrical penetrations. The Amphenol-Sams module seals had begun to leak due to age and environment and new seals were no longer available. After installation of the new modules, all affected circuits were tested to insure that all connections were made correctly.

Affected SAR Figures: 3.2-5, 8.3-110

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this component was not evaluated as an initiator of any analyzed accident, the electrical and mechanical integrity of the new module is superior to the previous design, and the new modules are of the same form, fit and function of the modules that were replaced; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not introduce any conditions or plant operating practices that could result in a new or different type of accident than those previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases for this component.

Charging Pump Check Valve Replacement

This design change package replaced each of the 3" swing check valves located downstream of the Unit 2 charging pumps with two smaller piston check valves mounted in series to reduce back leakage that has resulted in gas binding of the pumps. The smaller piston check valves, with resilient seats, provide optimum seating for isolating an idle pump against discharge header pressure.

Affected SAR Figure: 9.3-4

Table: 9.5-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not adversely affect any system or component credited with initiating or mitigating any previously analyzed accidents; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases concerning the charging pumps.

Emergency Feedwater Steam Supply Bypass Valve

This design change package replaced the Emergency Feedwater (EFW) steam supply bypass solenoid valve in the Reactor Auxiliary Building with a motor operated gate valve. This modification did not affect the function of the valve to allow a limited amount of steam flow to the EFW pump turbine upon startup to begin turbine rolling and to pressurize the hydraulic portions of the governor in order to prevent overspeeding the turbine when the main steam supply valve opens.

Affected SAR Figures: 10.2-4, 7.3-12, 8.3-109, 8.3-110, 8.3-59
Section: 10.4.9.2.1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not impact the initiation of any analyzed accidents, improved the reliability of the EFW System in mitigating accident consequences, and decreased the probability of a malfunction of equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification reduced the probability of a malfunction of the EFW System; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety related to the EFW steam admission bypass valve operation defined in the Technical Specification bases.

Control Room Emergency Chiller Controller Replacement

This design change package replaced obsolete analog controllers 2PIC-1509-1 and 2PIC-1506-2 and their associated power supplies with digital controllers relocated in closer proximity to the chiller skids.

Affected SAR Figure: 3.2-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since upgrading the existing analog controllers to digital controllers did not affect accident initiators, mitigators, or the functionality of equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since no new failures or accident scenarios were created which were not bounded by existing analyses and the ability of safety-related components to perform their analyzed safety functions was not compromised by the controller replacement; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the operating parameters of the Emergency Control Room Chillers were not addressed in the bases for any Technical Specification.

Resistance Temperature Detector Transmitters

This design change package replaced forty-one of the forty-five Weed Instruments Model 4000R Resistance Temperature Detector (RTD) transmitters with Model N7000 RTD transmitters. The 4000R RTD transmitters were obsolete and required excessive service to maintain. The four transmitters not replaced were adequate in their present usage and will be supported through spares generated by this change. The Model N7000 RTD transmitter employs a more accurate measurement technique through the use of four-wire technology. Because of the added requirement of the fourth wire, RTD detectors associated with the replaced transmitters were also replaced.

Affected SAR Figures: 7.2-16, 7.2-16A, 7.2-16B, 8.3-69, FMEA DIAG #3, FMEA
DIAG #3A
Section: 7.2.1.1.2.5.1.3
Tables: 7.2-5(C), 7.2-5(D), 7.2-5(E)

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these components were not evaluated as initiators of any analyzed accidents and this change did not negatively impact equipment function or accuracy; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not result in failure modes for safety-related equipment that were outside the present design bases; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the response times for the new RTD transmitters and detectors were not adversely affected.

Part Length Control Element Assemblies Replacement

This design change package replaced the Full Length Control Element Assemblies (CEAs) with new assemblies. The replacement assemblies are identical to the old ones with the exception that the bottom portion of the middle finger of the new assemblies contains silver-indium-cadmium cylinders where the old ones consisted of an Inconel 625 slug. The Part Length Control Element Assemblies (PLCEAs) were replaced with new Full Length CEAs having a withdrawal rate of 30 inches per minute. The replacement CEAs meet or exceed the requirements of the original CEAs and PLCEAs. This package also made minor modifications to the Plant Monitoring System.

Affected SAR Figures: 15.1.3-11, 15.1.3-12, 15.1.3-13, 15.1.3-14, 15.1.3-15, 15.1.3-16, 15.1.3-17, 15.1.3-18, 15.1.3-19, 15.1.3-20, 15.1.3-21, 15.1.3-22, 15.1.3-23, 4.2-18, 4.2-18A, 4.2-19, 4.3-10, 4.3-11, 4.3-12, 4.3-13, 4.3-19, 4.3-20, 4.3-20A, 4.3-20B, 4.3-20C, 4.3-28, 4.3-8, 4.3-9, 7.7-6

Sections: 15.1, 3.1, 4.1, 4.2, 4.3, 7.2, 7.7

Tables: 1.3-1, 15.1.3-10, 15.1.3-2, 15.1.3-3, 15.1.3-5, 15.1.3-6, 15.1.3-9, 4.2-1, 4.2-3, 4.2-3A, 4.2-5, 4.3-1, 4.3-3, 4.3-6

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification was bounded by existing accident analyses and did not result in any changes to the assumptions concerning equipment availability or failure modes; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not affect the overall function of the system and did not introduce new modes of failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the new CEAs meet or exceed the requirements for the old CEAs and will be operated in a manner that is consistent with the assumptions used in the safety analyses.

Control Element Drive Mechanism and Reactor Cavity Cooling
Damper/Actuator Replacement

This design change package replaced three Control Element Drive Mechanism (CEDM) dampers and both Reactor Cavity cooling dampers with mechanically operated backdraft dampers. The backdraft dampers were installed in the same location as the previous dampers and required no modifications to the existing ductwork. The remaining three CEDM crossover dampers were modified by removing their ITT Hydramotor actuators and replacing them with Limitorque motor operators to increase reliability.

Affected SAR Figures: 8.3-12, 8.3-8, 9.4-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the new dampers and actuators will function in the same manner as the previously installed components, but with improved reliability; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the new operators have a proven record for reliability in the environment in which they will be required to operate and replacement of these components did not introduce any new modes of failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specification bases did not define a margin of safety related specifically to the CEDM cooling or Reactor Cavity cooling dampers and actuators.

Low Pressure Safety Injection Valve Replacement

This design change package replaced two Low Pressure Safety Injection (LPSI) valves determined to be marginal in their ability to serve as a part of the reactor coolant pressure boundary. Specifically, these motor operated valves had to be manually hand torqued closed to allow them to seal against Reactor Coolant System (RCS) pressure applied from the downstream side. The new valves were oriented such that RCS pressure was applied above the seat assuring positive sealing without manual action under all postulated differential pressure conditions.

Affected SAR Figures: 6.3-2, 8.3-12, 8.3-8
Table: 3.9-6

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the valves installed by this modification function in a manner identical to the valves that were replaced and possess the same capabilities to function in accident mitigation; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not change the function of the present system or introduce the possibility of any new malfunction of equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specification bases did not address margin of safety related to the type of valves installed in the LPSI lines and the new valves maintain the ability to be closed remotely from the Control Room in the event of check valve leakage such that they will be able to seal against maximum RCS pressure without local manual operator action.

Generator Sequential Tripping

This design change package changed the turbine/generator trip scheme to prevent turbine overspeed if one or more of the steam inlet valves fails to seat properly. A reverse power relay and two new lockout relays were installed into the trip path so that a positive indication of power flowing into the generator is assured before the generator output and field breakers are tripped, thereby preventing turbine overspeed. This modification also changed the DC supply for the old reverse power relay from the Black DC supplied by the "red" bus to Black DC supplied by the "green" bus. The new reverse power relay was added to the Black DC supplied by the "red" bus so that a loss of either DC bus will not diminish the ability of the protection scheme to detect motoring and trip the generator.

Affected SAR Figures: 8.3-2, 8.3-22, 8.3-32, 8.3-33, 8.3-34, 8.3-35
Sections: 15.1.33, 8.3.1.1.8.11.1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification decreased the probability of an Emergency Diesel Generator failure and affected only the non-Q, non-safety related main turbine generator trip logic components; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these changes to the main turbine generator trip logic did not create any failure mechanisms that would cause an accident of a different type than those previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there was no margin of safety defined in the Technical Specification bases concerning the turbine/generator trip logic.

Emergency Diesel Generator Low Lube Oil Pressure Trip Circuit Time
Delay Setpoint

This engineering action request changed the setpoints of the Emergency Diesel Generator (EDG) pneumatic time delay relays from fifteen to twenty seconds. These relays enable the trip circuit after the diesel has started and the oil pressure has had sufficient time to increase above the setpoint of the low lube oil pressure switch. One relay was found to be timing out early causing the low lube oil trip circuit to be enabled before the lube oil pressure had sufficient time to increase above the pressure switch setpoint.

Affected SAR Figure: 8.3-51

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the EDGs were not evaluated as accident initiators, this change resulted in making the EDGs a more reliable source, and the effects of extending the time delay in regard to engine wear and tear was negligible; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the change in the time delay setting decreased the likelihood of a false trip of the diesels during an engine start, thus making the EDGs a more reliable source; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the applicable margin of safety does not describe the affected components.

VSF-9 Silencer Installation

This modification replaced a portion of the supply ductwork for Emergency Control Room Filtration Unit VSF-9 from the concrete slab below Elevation 404' to the Control Room ceiling. The new ductwork incorporated three elbow silencing devices, as well as a rectangular silencer, and was seismically designed and supported. A permanent access platform and an enlarged access hatch were added to facilitate replacement of the ductwork.

Affected SAR Figure: 9.4-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since VSF-9 was not credited as an accident initiator, its mitigating functions were not affected by this modification, and the addition of the platform introduced no new failure modes; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the new ductwork was designed to standards which meet or exceed those of the previously existing ductwork; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since design airflows and pressures were not changed by this modification.

Motor Operated Valve Electrical Calculation Review

This limited change package replaced circuit breakers and overload heaters for certain Motor Operated Valves (MOVs) contained in the Generic Letter 89-10 MOV Program. In addition, Engineered Safety Feature (ESF) signals were modified for some MOV circuits so that the overload bypass ESF signal matches the control ESF signal. Other minor limit switch indication wiring changes were also made.

Affected SAR Figures: 8.3-109, 8.3-110, 8.3-12, 8.3-13, 8.3-8, 8.3-9

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the circuit breakers and thermal overload bypass circuits were not credited as initiators and this modification met all design basis requirements and provided better motor protection; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these changes were bounded by existing accident and single failure analyses; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the redundancy required by Technical Specifications was maintained.

Electrical Modification for Central Support Building Site
Preparation

This limited change package installed a duct bank and underground conduits in the building site area for the new Central Support Building.

Affected SAR Figure: 8.3-53

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these changes did not impact any equipment or systems credited with initiating or mitigating any of the previously analyzed accidents and did not affect any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these changes met standards and quality requirements for similar plant equipment and did not create any new modes of failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Circulating Water Pump Impellers

This limited change package installed stainless steel impellers on the existing Circulating Water (CW) pumps to offer a longer useful life than the original impellers. The original impellers had to be coated every three years during pump rebuild. The coating tended to flake somewhat during pump operation and wedge in the condenser tubes causing leaks that required a load reduction to find and repair. The new stainless steel impellers will not require the coating and can be more easily repaired by weld buildup than the original aluminum-bronze impellers. The new impellers have a modified trim to provide an increase in flow capacity of approximately 4.5% resulting in reduced condenser back pressure and increased plant thermal performance.

Affected SAR Figure: 10.4-4
Section: 10.4.5.3
Tables: 10.4-1, 10.4-2, 10.4-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the CW System functions were unchanged, the failure of the components associated with this change would not change the failure considerations or change the consequences of failure previously evaluated in the SAR, the CW System is not essential to safety, and implementation of the modification did not change the probability of a malfunction of equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change to the circulating pump impellers and associated trim did not change the function or failure modes of any component or system and did not alter SAR accident type considerations; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases for the CW System.

High Pressure Safety Injection Pump Room "C" Floor Drain

This limited change package removed the High Pressure Safety Injection (HPSI) pump room "C" level detector from the floor drain. The level detector was reinstalled near the floor drain and a floor drain plug was installed. The installation of the drain plug made HPSI pump room "C" watertight and isolated room "C" from Engineered Safety Features (ESF) pump room "B" by eliminating the potential for cross-flooding of these rooms through the floor drain piping system.

Affected SAR Figures: 11.2-1, 6.3-2

Sections: 15.1.13.4.2, 3.6.4.3.3.1, 3.6.4.5.2.2.2, 9.3.3.2.1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these modifications made HPSI pump room "C" watertight and eliminated the potential for cross-flooding into ESF pump room "B" which resulted in making previous accident evaluations conservative; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not change the function or failure modes of any component, system, or structure and remained bounded by existing analyses; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification did not affect any margin of safety defined in the Technical Specification bases.

Replacement of Reactor Coolant System Temperature Differential Pressure Indicators

This limited change package provided permanent documentation for the removal of the Reactor Coolant System hot leg and cold leg temperature and differential pressure indicator handswitches and replaced the single channel Sigma indicators with dual channel Dixson indicators. Operation of the handswitches for the Sigma indicators caused signal spiking on other instrument loops. The handswitches were removed resulting in the display of only half of the signals to the associated indicator.

Affected SAR Figures: 5.1-3, 5.5-2, 7.2-16B, FMEA DIAG #3, FMEA DIAG #3A
Sections: 3.1.2, 3.10, 3.11.2, 7.5.2.5.3, 8.1.4
Tables: 3.10-1, 7.2-5(D), 7.2-5(E), 7.5-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not impact any components credited with initiating an accident, did not introduce any new modes of failure, and decreased the probability of a malfunction of equipment important to safety by eliminating signal spikes; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously analyzed accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Auxiliary and Turbine Building Piping Discrepancy Resolution

This limited change package resolved thirty-four Engineering Action Requests (EARs) issued by the Iso Update Project (IUP) by reconstructing the original design bases analyses of the affected systems using "as-built" field data. Thirty-three EARs dealt with discrepancies in the Auxiliary and Turbine Buildings and one EAR identified a discrepancy inside the Containment Building. This design basis reconstruction effort required support modifications to some of the affected piping systems and one small bore piping weld enhancement. These modifications did not affect the operation, function, or failure modes of any system or component.

Affected SAR Figures: 10.2-4, 3.2-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these modifications did not affect any mitigating functions or affect the sequence of events associated with any of the previously analyzed accident scenarios and did not change the operation, function, or failure modes of any system or component; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these modifications remained bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases associated with any of the components affected by this limited change package.

Blockwall Modifications

This limited change package modified three seismic, Category 1 blockwalls to bring them into a code qualified condition. The modifications consisted of the addition of anchorage and the reinforcement of openings through the walls.

Affected SAR Sections: 3.7.6.3.1.5.1, 3.7.6.4.2, 3.7.6.4.3, 3.7.6.4.5,
3.7.6.4.6

Tables: 3.7-12, 3.7-13, 3.7-14, 3.7-15, 3.7-16, 3.7-17, 3.7-18

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not affect any operating requirements, controls, pressure retaining requirements or boundaries, or safety functions assumed in the cause, occurrence, or mitigation of any accidents postulated in the SAR; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these modifications restored the affected walls to code compliance with their design bases and did not introduce any conditions that could cause a malfunction of equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no specific margins of safety associated with this modification.

Central Support Building Network Computer Center

This limited change package utilized two existing conduits to route fiber optic communications cables to support the Computer Network System in the Central Support Building. These fiber optic cables did not have any ties to Class 1E systems and only provided a communications link between telephone equipment supporting operation of the Computer Network Center and various other non-safety related systems.

Affected SAR Figure: 8.3-53

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the added fiber optic cables were not safety related and did not impact any safety related equipment; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the cables did not introduce any new failure modes for any safety related equipment; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change did not impact any margins of safety as defined in the Technical Specification bases.

Vacuum Breaker Orifice Installation

This limited change package replaced the 2" carbon steel lines to the air/vacuum release valves on the service water pumps with stainless steel lines. Stainless steel orifices were also installed to limit water releases resulting from valve failure that could adversely affect flow rates to downstream Service Water System (SWS) components.

Affected SAR Figure: 9.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since loss of service water has been previously analyzed as an accident and this upgrade to the SW vacuum breaker lines improved the reliability of the SW System and did not change the existing failure modes of the system; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the new orifices will further limit the possibility of SWS malfunction due to water losses resulting from a vacuum breaker valve failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there are no specific references to these components in the Technical Specification bases.

Fire Barrier Upgrade

This limited change package upgraded fire barrier 2097-3 from "Insurer" to "NRC Required". This upgrade provided separation between the normal AC, alternate AC, and backup DC power supplies to 2Y22 and the red instrumentation power sources in corridor 2104. This barrier was inadvertently omitted from Design Change Package 86-2010.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change increased the level of fire protection to ensure that a fire will not disable redundant trains of a safety related system; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not affect any safety related equipment except to ensure that it is adequately separated in the event of a fire; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change increased the margin of safety by ensuring better separation.

Main Feedwater Pump Trip Hardening

This limited change package provided coincident trip logic for the Main Feedwater Pump (MFP) turbine. These changes to the MFP turbine driver trip component and associated circuitry were made to improve fault tolerance. The components involved in this design change were non-Q and non-Seismic.

Affected SAR Figures: 10.2-3, 10.2-4, 10.4-2, 3.2-1, 7.3-9, 8.3-64
Sections: 10.4.7.2, 10.4.7.5

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not affect the feedwater flow accidents analyzed in the SAR, did not impact the ability of the affected systems to mitigate an accident, and this modification provided coincident logic for the MFP trip circuitry which will help reduce the probability of an inadvertent MFP trip and in turn reduce the potential for challenges to safety components and systems; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification was bounded by existing accident analysis and did not affect or add equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this design change did not involve the level of detail for components or systems addressed in the Technical Specification bases.

Waste Gas System Improvements

This limited change package replaced the hard-seated carbon steel waste gas compressor discharge piston check valves with soft-seated stainless steel piston check valves. A third piston check valve and a stainless steel strainer were installed in the common discharge line downstream of the existing check valves. The new check valve provides added protection against back-leakage out of the waste gas tanks. This modification also justified downgrading the system piping from ASME III, Class 3 to ANSI B31.1 design and fabrication requirements with ASME II materials. This downgrade maintained the Waste Gas System (WGS) design within the requirements stated in Regulatory Guide 1.143.

Affected SAR Figures: 11.2-1, 11.2-2, 11.3-1, 9.3-2, 9.3-4
Section: 15.1.16.1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not affect the operation of the WGS and all new materials were specified to be compatible with the chemical, physical, and radioactive environment of the WGS during normal conditions and anticipated operational occurrences; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification was bounded by accidents previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification did not change the amount of radioactivity allowed to be contained in each waste gas decay tank or the manner in which the system is operated.

Service Water Piping

This limited change package added four 8" manual butterfly valves to the Service Water System supply and return lines to allow isolation of auxiliary systems requiring maintenance without removing an entire loop of service water from service. The "Q" piping affected by this modification was qualified in accordance with Specification ANO-M-2514 as it relates to ASME Section III for thermal, deadweight, and seismic loading.

Affected SAR Figure: 9.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since all design bases associated with service water flow and operation were maintained by this modification and this modification did not adversely impact equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since no new failure modes were introduced by this modification; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the systems and components associated with this change will operate and function consistently with the original design without changing existing parameters.

Gear Change for Containment Isolation Valves

This limited change package installed locking gear sets on three containment isolation valves located in the Component Cooling Water supply line to the reactor coolant pump motor coolers, lube oil coolers, and seal cooling. Installation of the locking gear sets will prevent back-driving of the valve actuator that could result in position indication problems. This modification lengthened the stroke times of these valves from 19.18 seconds to 25.06 seconds.

Affected SAR Section: 5.2.1.6
Table: 6.2-26

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not degrade the performance or reliability of the system as a containment isolation and did not increase the probability of a malfunction of equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by existing accident analyses; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases that addressed the closure time of these valves.

Circulating Water Differential Pressure Indicating Switch Setpoint Change

This limited change package changed the setpoint of two differential pressure indicating switches from 0.5' to 0.8' differential level. These indicators are installed in the Circulating Water Pump Control Building. They provide local indication and an alarm function on the local alarm panel and an input to the Circulating Water Trouble Alarm in the Control Room. The setpoint change did not change any function or design characteristics of the circulating water pumps or the Circulating Water System (CWS).

Affected SAR Figure: 10.4-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the CWS was not credited with initiating or mitigating any previously analyzed accidents, this setpoint change did not change the operating characteristics of the CWS, and this change did not affect any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since any possible malfunctions or failures associated with the components impacted by this setpoint change were bounded by previously evaluated SAR accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined for the CWS and this setpoint change did not reduce the margin of safety of any surrounding component or system important to safety or affect any operability as defined by Technical Specifications.

Circulating Water System Pump and Discharge Valve Control Logic

This limited change package made improvements to the circulating water pumps and the discharge valve control circuitry in response to Engineering Action Request (EAR) 95-0010. EAR 95-0010 stated that the circulating water pump start/stop logic inter-relation with pump discharge valve position resulted in four plant trips. These improvements provided for better interface between the operator and the equipment, simplified the controls of both pumps and their discharge valves, and removed the dependency of voltages or other components for control of the Circulating Water System. Other improvements included de-energizing the two speed clutch under normal plant operations and the addition of a blocking relay on the discharge valve controls to prevent valve automatic reopening after valve closure while the pump is still in operation. All of these improvements will reduce the challenge to plant transient due to loss of the Circulating Water System.

Affected SAR Figure: 10.4-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these modifications enhanced system reliability, did not alter any assumptions made in previously evaluated accidents, and did not impact any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these changes are bounded by existing accident analyses; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Intake Structure Exhaust Fan Damper Motor Power Modification

This limited change package removed the Intake Structure Exhaust Fan Damper Motor 120 VAC power from the Control Power Transformer (CPT) circuits, located in Motor Control Center cubicles 2B52E3 and 2B62E3, and repowered them from new, locally mounted CPTs. The new CPTs were installed to resolve a concern with a control power fuse occasionally blowing due to the current drawn by the damper motors.

Affected SAR Figure: 8.3-54

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification improved the reliability of the system and did not change, degrade, or prevent actions as described or assumed in the accidents evaluated in the SAR; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by those accidents previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there was no margin of safety discussed in the Technical Specification bases concerning the Intake Structure exhaust fan and damper motors.

Normal Control Room Chiller Replacement

This limited change package replaced the Normal Control Room Chillers with new Trane Water-Cooled Rotary Chillers. The new chillers are of an equivalent size and design and were selected to be compatible with existing equipment. The new chillers have dual rotary screw compressors that are independently controlled and coordinated by a microprocessor controller for increased efficiency.

Affected SAR Figures: 1.2-2, 3.2-3, 3.5-11, 3.6-3, 9.3-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not affect any equipment credited with initiating or mitigating any of the previously analyzed accidents and will result in improved performance and reliability; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not alter the extent, type, or quality of interaction between the normal control room chillers and equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the ability to maintain the Control Room environment during normal operations and the function of the emergency control room chillers was not affected by this modification.

Main Steam Isolation System Relays Signal Failure Modification

This limited change package changed the Main Steam Isolation System (MSIS) actuation relays for two condensate pumps and one feedwater pump. The Channel 2 MSIS signals were removed and Channel 1 signals were added to the condensate pumps. Two cables were de-terminated on the feedwater pump and terminated on different actuation relays in the same bay and cabinet. The changes did not impact battery or diesel generator loading.

Affected SAR Figure: 10.4-2
Section: 6.2.1.1.2.6

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these changes maintained the use of separate and distinct actuation relays for the condensate pumps ensuring that a single failure will not cause the loss of more than one pump; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the change in actuation channels for the condensate pumps maintained single failure analysis regarding the operation of all four pumps; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since changing the actuation relays for the condensate pumps from Channel 2 to Channel 1 did not affect the ability of the pumps to trip within the specified time frame as defined by Technical Specifications.

Recirculation Actuation System Relief Valves

This limited change package added small thermal relief valves to the containment sump Recirculation Actuation Signal (RAS) suction valves to prevent pressure build-up in the bonnet areas of these valves. The relief valve setpoint of 100 psi +/-3% will limit pressure build-up due to thermal expansion resulting from temperature increase and the expansion of water trapped in the bonnet cavities when the control valves are in the closed position. The setpoint of the relief valves was selected so that design operating and accident pressure will not cause the valves to lift, but bonnet pressures in the control valves will be limited to values that are well below levels that could prevent the control valve operators from driving the valves open under accident conditions.

Affected SAR Figure: 6.2-17

Table: 15.1.13-5

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the affected system was not evaluated as an accident initiator, the relief valve setpoint is higher than pressures that will be experienced on either side of the control valves event under accident conditions, and installation of the relief valves increased the reliability of the control valves under accident conditions; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since addition of the thermal relief valves did not change the function of the system or system components and resulted in increased reliability of the RAS containment sump suction valves under accident conditions; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since addition of the new thermal relief valves improved reliability of the RAS containment sump suction valves, did not reduce safety margins associated with these valves, and the valves were added to the Inservice Testing Program to assure long term reliability. Surveillance requirements specified for Refueling Water Tank levels will assure that margins of safety will not be compromised by the addition of these thermal relief valves to the RAS.

Containment Flanged Penetration

This limited change package installed flanges on an existing penetration to provide temporary access to the Containment Building during outages. This modification removed the welded cap on an existing containment penetration, installed weld-neck flanges on both ends of the penetration sleeve, and installed blind flanges on both the inside and outside of the Containment Building to seal the penetration. A vent/test connection was included to allow Local Leak Rate Testing (LLRT). This modified penetration was tested to verify containment integrity using a Type B LLRT.

Affected SAR Figures: 3.5-10, 3.6-43, 9.3-1
Section: 3.8.1.4.2
Tables: 3.8-1, 6.2-26

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this configuration did not influence any accident initiators, the modified penetration provided a leak tight closure, this modification did not affect the function of any equipment important to safety, and this modification did not create a condition that would increase the leakage from containment due to any postulated accident; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by those accident scenarios previously analyzed in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modified penetration met the measured overall integrated leakage rate limits as defined in the Technical Specification (TS) bases for TS 3/4.6.1.2.

Plant Heating Boiler Blowdown Valves

This plant change replaced the globe valves on the plant heating boiler drain with larger ball valves to provide a more rapid blowdown of the level pot when the cutoff switches are tested. Hard piping was installed from the valves to a nearby floor drain to prevent possible injury from a hot water or steam release during blowdown.

Affected SAR Figure: 3.2-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the plant heating boiler was not credited as an initiator or mitigator in any previously analyzed accident and this modification did not introduce any new failure modes for equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification was implemented to decrease the possibility of personnel injury and did not create the possibility of an accident unlike those evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases concerning the plant heating boiler.

Removal of the Respirator Charging Room Water Heater and the
Addition of an Electrical Receptacle

This plant change removed the water heater from the Respirator Charging Room. Remodeling and changes in work practices made the need for a water heater obsolete. The addition of an electrical receptacle allows the use of a quick freeze freezer needed for personnel safety equipment.

Affected SAR Figure: 9.2-7

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the Respirator Charging Room water heater served no safety related functions, the receptacle is not powered from a safety related panel, and neither interface with safety related components or systems; or
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since removal of the water heater does not change the operating characteristics of any safety related equipment and the electrical receptacle is powered from a non-safety related lighting panel; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this equipment is not addressed in the Technical Specification bases.

Heater Drain Pump Pressure Gauge

This plant change installed a pressure gauge in the seal line for heater drain pumps 2P8A and 2P8B. The local indicator is a passive component and does not affect the heater drain pump seals.

Affected SAR Figure: 10.4-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since installation of the local pressure indicator did not affect the design, function, or operation of any component or system; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not adversely affect any safety related equipment; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specifications bases.

Auxiliary Cooling Water Corrosion Rack

This plant change installed a hose connection in the Auxiliary Cooling Water (ACW) line to provide access to the ACW corrosion rack.

Affected SAR Figure: 9.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the equipment modified by this plant change was not important to safety and this modification did not affect the initiation or mitigation of any previously analyzed accident; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the addition of this hose connection did not create any new modes of failure and did not affect the operation of any equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the addition of this hose connection did not impact any margins of safety defined in the Technical Specifications bases.

Relocation of Makeup Degasification Vacuum Pump Seal Water
Pressure Switches

This plant change relocated the makeup degasification vacuum pump seal water pressure switches from downstream of the flow orifices to upstream of these orifices to allow the switches to adequately sense seal water pressure. The set-points for these pressure switches were also changed to allow operation in the new location.

Affected SAR Figure: 9.2-7

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not change the design or function of the Makeup Degasification System and did not affect any equipment or systems important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not alter the original design, function, or flow configuration of the Makeup Degasification System; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there are no margins of safety for this system defined in the Technical Specification bases.

Service Water Corrosion Monitoring

This plant change installed a corrosion monitoring station for the Service Water System (SWS). The corrosion monitoring rack will be utilized to perform various material corrosion studies pertinent to the SWS. The rack is comprised of a skid containing coupons of material representative of the service water piping, instrumentation which monitors corrosion rate, and a biological monitoring station which provides a static reservoir for biological growth and analysis.

Affected SAR Figure: 9.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since installation of the corrosion monitoring station did not affect the Service Water System's ability to perform its intended function or increase the probability of a malfunction of equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification was bounded by accident considerations previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the installation and operation of the corrosion monitor did not affect the operation or capabilities of any system and did not reduce any margin of safety as defined in the Technical Specification bases.

Hot Tool Room Decon Sink and Exhaust Hood Removal

This plant change removed the decontamination sink and exhaust fume hood from the new Hot Tool Room. The water supply and drain piping was isolated and the lines were capped. The exhaust hood was isolated from the Exhaust System by verifying that the damper was fully closed. The ductwork was capped by removing the ductwork up to the elbow and applying a sheet metal patch and hardcast over the joints to seal the duct.

Affected SAR Figures: 11.2-1, 9.4-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not affect the function, operation, or reliability of the Liquid Radwaste or Exhaust Systems; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not create any circumstances not bounded by previous evaluations; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification did not alter the operation, function, or reliability of the Liquid Radwaste or Exhaust Systems.

Redundant Train Dryer for Instrument Air

This plant change installed an additional instrument air dryer, a coalescing pre-filter, various piping and valves, and a flowmeter on the Instrument Air System in order to improve the reliability and operational flexibility of the system. An air accumulator was also added for the control air for the Instrument Air cross-connect valve. These changes did not involve EQ equipment, safety related systems, or seismic class I piping.

Affected SAR Figure: 9.3-1
Sections: 9.3.1.1, 9.3.1.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these modifications served to enhance the reliability of the Instrument Air System and did not alter the function of any existing equipment; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the function of the Instrument Air System was unaffected and no new failure modes were introduced; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the addition of the redundant train air dryer and its associated equipment did not impact any margins of safety defined in the Technical Specification bases.

Unit 2 Spent Fuel Pool Cooling Siphon Breaker Relocation

The spent fuel pool discharge piping siphon breaker was moved to a new location approximately six inches below the normal pool level to minimize air intrusion and thereby improve water clarity.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report (SAR) since the piping design had already taken the new location of the siphon breaker into account and the accident analysis for a fuel handling incident remained valid; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since relocation of the siphon breaker introduced no new equipment or design features; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since a break at the new siphon breaker location would not result in a reduction of the spent fuel pool water level below the minimum specified in the bases of the Technical Specifications.

Control Room Ventilation Radiation Monitor

This plant change re-directed the output of the Control Room ventilation radiation monitor to allow operators to have a more detailed plot of the activity in the Control Room ventilation duct. Unlike the old recorder which had an eleven second delay between printed points, the new recorder has a continuous type printout. This change did not affect system function, component function, or system failures.

Affected SAR Figures: 10.4-2, 11.2-2, 9.4-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this equipment was not credited as an initiator or mitigator of any analyzed accidents and this change did not introduce any new modes of failure for equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not introduce any new failure modes or impact any other equipment in the Radiation Monitoring System; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change enhanced the ability to trend the radiation monitor for Control Room ventilation and did not affect the ability of the Control Room Isolation System to maintain the habitability requirements as stated in the Technical Specification bases.

Boric Acid Makeup Pump Discharge Pressure Sensing Line

This plant change replaced the oil filled capillary tubing on the Boric Acid Makeup (BAM) pump discharge pressure instrument with 3/8" stainless steel tubing, connecting the discharge of the pump directly to the pressure indicating switches. The capillary tubing and diaphragm were initially installed to prevent precipitation of boric acid in the instrumentation lines that would occur due to the high concentration of boric acid that was used. A change to the ANO-2 Technical Specifications allowed a lower boric acid concentration to be used which remains in solution at normal room temperatures. This modification allowed the boric acid solution to be the fluid medium transmitting the process pressure to the pressure indicating switches.

Affected SAR Figure: 9.3-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the Boric Acid System was not evaluated as an initiator of an accident, this modification did not reduce the availability of boric acid for injection, and this change did not increase the probability of failure for any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety for BAM pump instrumentation defined in the Technical Specification bases.

Corrosion Product Samplers for the Steam Generator Blowdown System

This plant change installed two corrosion product samplers downstream of the Steam Generator (SG) Blowdown containment isolation valves. Sample cooling was provided by the Component Cooling Water (CCW) System.

Affected SAR Figures: 10.2-3, 9.2-6, 9.3-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the corrosion product samplers were installed downstream of the Steam Generator Blowdown containment isolation valves and no safety related function was impaired; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the effects of a malfunction of the SG Blowdown System or the CCW System were not impacted by this change; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specification bases did not address either the SG Blowdown System or the CCW System.

Instrument Air Component Filters

This plant change installed in-line air filters at each air actuator not previously provided with an air filter or where the original filter provided insufficient filtration capability relative to the manufacturer's recommendations. These air filters are rated for 5 micron filtration and were designed to provide for removal of entrained moisture and air-borne solid contaminants which may plug small orifices or cause excessive wear and premature failure of pneumatic components. An air filter was dedicated to each air actuator with the exception of the Control Room Emergency Fan/Filter Unit which utilizes one filter to supply three dampers. An air isolation valve was added to the common instrument air supply to this unit to facilitate filter and damper maintenance.

Affected SAR Figure: 9.4-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the addition of point-of-use filters did not change the function or the failure modes of any component or system; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the function and operating modes of the Instrument Air System were not affected and addition of these filters did not impact the accident considerations for loss of instrument air; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the increased quality of supply air enhanced host component reliability.

Electrochemical Potential Monitoring System

This plant change installed an Electrochemical Potential Monitoring System to permit on-line monitoring of the feedwater through measurements of electrochemical potentials under operating conditions. This system will be used to determine the effectiveness of chemistry changes and oxygen levels for controlling the electrochemical potential in the secondary system. The system consists of a flow channel capable of accepting eight monitoring devices, a data acquisition/monitoring system, temperature sensors, a flow meter, and instrumentation. A 440 mesh strainer was installed upstream of the flow meter to prevent particulates from damaging the meter.

Affected SAR Figures: 10.2-3, 10.4-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since addition of the Electrochemical Potential Monitoring System did not require any new penetrations of existing piping, the Condensate and Feedwater System design included provisions for automatic isolation of the system from the steam generators when required to mitigate the consequences of a steam line break, and all new piping installed by this modification was upstream of the containment isolation valves and was bounded by current system design evaluations; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not create failure modes that would result in an accident of a different type than those previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since installation and operation of the Electrochemical Potential Monitoring System presented no new avenues for degradation of safety and the margin of safety defined in the bases for the Technical Specifications was not reduced as a result of system augmentation.

Molar Ratio Control

The Molar Ratio Control (MRC) System was designed to enhance plant established water chemistry guidelines. The MRC System injects ammonium chloride into each feedwater header downstream of the main feed pumps in order to maintain the cation-to-anion ratio within established guidelines while maintaining sodium and chloride as low as possible.

Affected SAR Figures: 10.4-2, 9.2-7

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since all modifications made to the feedwater piping met ANSE B31.1.0 piping class requirements for critical line class 2DBD, possible line breaks or ruptures of the new piping were bounded by previous evaluations of a main feedwater line break outside containment, and no new failure modes for equipment important to safety were introduced; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the only failure modes for the new system would be structural and/or functional failures which would not increase the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the installation and operation of the Molar Ratio Control System presented no new avenues for degradation of safety.

Central Support Building

The Central Support Building (CSB) was constructed in an area just north of the existing Maintenance Support Building. It is an approximately 60,000 square foot building including tie-ins to existing potable water and sanitary sewer systems. This plant change also encompassed the installation of the temporary security fence around the perimeter of the construction site and subsequent restoration of the permanent security boundary perimeter fencing.

Affected SAR Figures: 1.2-1, 2.4-8, 2.5-17

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the installation of the CSB and tie-ins to the water and sewer systems had no affect on plant systems or equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since none of the equipment associated with this plant change was safety related and installation did not create the possibility of a malfunction of equipment important to safety of a different type than that previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the installation of the CSB did not affect any plant equipment or components.

Boric Acid Heat Trace

This plant change modified the electrical heat tracing associated with the boric acid batching and storage tanks and associated flowpaths of the Chemical and Volume Control System (CVCS). The alarm and control setpoints for heat tracing on piping and components between the batch tank and the boric acid makeup tanks were lowered to eliminate spurious alarms. The heat tracing on piping and components downstream of the boric acid mixing tanks was abandoned in place.

Affected SAR Figure: 9.3-4
Sections: 9.3.4.3.15, 9.3.4.4.1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the boric acid portion of the CVCS was not evaluated as an initiator, this modification did not reduce the availability of boric acid for injection to the Reactor Coolant System, and this modification did not impact the reliability of equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification was bounded by previously evaluated accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this plant change did not reduce the capability of the boric acid system to perform its function.

Relocation of Underground Utilities

This plant change relocated underground utilities to support installation of the new black diesel building. A domestic water line, an instrument air line, and electric conduits were rerouted in preparation for the construction. In addition, the 3" domestic water line was replaced with a 4" line due to unavailability of the smaller pipe.

Affected SAR Figure: 9.2-7

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the components associated with this modification were not safety related, and do not interface with safety related components or systems; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these components are passive elements and do not affect the operation of safety related systems, components, or structures; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since these components were not addressed in the Technical Specification bases.

Emergency Diesel Generator Fuel Oil Sample Valves

This plant change removed two Emergency Diesel Generator fuel oil sample valves. The valves were located in the tank vaults and were fastened to their respective diesel fuel lines by a tee which was capped upon removal of the valve. These valves were used at one time for obtaining samples from the fuel tanks, but have not been used since 1987.

Affected SAR Figure: 9.5-8

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the affected valves were sample valves and were not credited with initiating or mitigating any of the previously analyzed accidents and replacement of the valves with threaded caps did not adversely affect the pressure boundary capability of the lines; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since replacement of the valves with threaded caps enhanced the pressure boundary safety function of the affected piping; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases that were affected by the removal of these sample valves.

Service Water Radiation Element Piping

This plant change increased the size of the Service Water (SW) connections and piping associated with five SW radiation monitors from 1/2" to 1" to minimize pipe clogging and to enhance the effectiveness of the monitors. This modification relocated the supply and return taps from the SW piping flanges to the SW piping header for each of these monitors and replaced the supply and return tie-ins and all piping with 1" piping to increase flow through the monitors. This modification also replaced and relocated the 2" carbon steel line in the Loop 1 SW emergency makeup to the spent fuel pool to eliminate silt traps and to prevent corrosion from occurring.

Affected SAR Figures: 9.1-1, 9.2-1
Section: 9.2.1.2.2.4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification enhanced the effectiveness of the radiation monitors, did not affect the function of the SW System, and did not introduce new failure modes for equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not change the function or the failure modes of any component or system; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this plant change reconfigured the radiation element supply and return lines to reduce clogging and increase reliability of the detectors, and all modifications were performed under the original piping class requirements.

Auxiliary Cooling Water Valves

This plant change added valves and piping to the Auxiliary Cooling Water (ACW) System supply and return piping from the Electro Hydraulic Control System. This addition provided a redundant supply and return to permit maintenance of the ACW piping during normal plant operation.

Affected SAR Figure: 9.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these changes were to the non-safety related ACW System, which is isolated for accident response, and did not affect the safety related portion of the Service Water System; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since these changes to the ACW System did not affect the operation or capabilities of any other system and did not reduce the basis for the margin of safety as defined in the Technical Specifications.

Sprinkler Piping Removal

This plant change disconnected the sprinkler piping to the trailer complex located east of the Modification Building. These trailers were no longer required on site.

Affected SAR Figure: 9.5-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the removal of this section of sprinkler piping eliminated possible line breaks or failures; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the branch line that supplied fire water to the temporary buildings can be isolated and was located upstream of the area modified; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the margin of safety for having the capability to isolate the sprinkler system from the main loop in the event of a failure was maintained.

Containment Spray Header Level Alarm

This plant change raised the containment spray header low level alarm setpoint from 12.5% (505 feet, 0 inches) to 18.75% (505 feet, 9 inches) as indicated on narrow range containment spray header level instruments. The purpose of raising the low level alarm above 12.5%, the minimum level required by Technical Specifications, was to provide operations personnel an opportunity to raise the header level prior to entering a Technical Specification action statement. These alarms are non-Q and function only to alert the Control Room of low header level.

Affected SAR Figure: 7.3-7

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this system is not credited as an initiator of any analyzed accident, the setpoint change does not affect the containment spray system's ability to mitigate an accident, and this alarm does not provide input into any safety related component or system; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the minimum amount of water inventory will be maintained and there is no accident of a different type than previously evaluated that the slight increase in spray header water level could affect or create; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since Technical Specification bases do not specify any margins of safety concerning containment spray header level.

ANO Maintenance Building Hot Meal Facility Removal

This plant change removed the hot meal facility from the Maintenance Building and added two conduits in the ANO-2 Turbine Building. This allowed for a fiber optic cable run between the Safety Parameter Display System Room and the Maintenance Building adding the capability to monitor the plant computer in the Maintenance Building.

Affected SAR Figures: 8.3-61, 8.3-62

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification provided monitoring access to the plant computer and did not impact any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification had no impact on safety related equipment, components, or accident response; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification did not affect any margin of safety defined in the Technical Specification bases.

Emergency Diesel Generator High Point Vent

This plant change added 1/8 inch stainless vent valves at the highest point on the Emergency Diesel Generator (EDG) Jacket Cooling Water System to allow venting of the engine when it is shutdown. In addition, it added 1/2 inch stainless pipe fittings to remove the kink in the hoses connecting the jacket cooling water and air coolant vents to the expansion tank. The new valves, fittings, and hoses are "Q" and safety related and have no effect on the seismic qualification of the engine piping they are installed on due to their small size relative to the piping. The pressure and temperature ratings of the new components are higher than the maximum system pressures and temperatures.

Affected SAR Figures: 9.5-8, 9.5-9

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the EDGs are not credited with initiating any evaluated accident, the affected components have no active safety function, and the new components meet or exceed the original design requirements of the components they are installed on to ensure that no new failure modes were created; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the failure of a single diesel is assumed in the safety analysis and the addition of valves and fittings did not create any new modes of failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since all original design requirements were maintained to assure that the diesels are available to perform their safety function.

Circulating Water (CW) Sulfuric Acid Gravity Drain

This plant change installed a permanent alternate method of sulfuric acid addition to the Cooling Tower (CT) basin. Carbon steel piping was installed between the acid storage tank and the CT basin to replace the temporarily installed PVC piping. Heat trace, added to prevent freezing and to minimize viscosity effects of low ambient temperatures, was powered from a non safety related 110 VAC lighting panel.

Affected SAR Figure: 10.4-1
Section: 10.4.5.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification was installed to conform to piping specifications, provided only an alternate method of acid addition, and affected only the non safety related CW System and power supply; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change introduced no new failure modes for equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there was no margin of safety for the CW System defined in the Technical Specification bases.

Startup Excure System Enhancements

This plant change incorporated two temporary modifications (TMs) as permanent and extended the noise reduction changes from one of the TMs to another channel to increase the reliability and performance of the startup excure system.

For one TM, three display driver cards for the power range indicators and one source range rate indicator card for each processor drawer were permanently disabled, leaving only the source range log indicator operable. This decreased the internal heat load in the signal processor drawers while still supplying the indication requirements needed by operations personnel. All other system functions remained operable.

The second TM corrected a noise susceptibility problem by removing the cable shield to ground connection point for Channel One of the Startup Excure System. This same point was lifted for Channel Two to reduce the noise susceptibility for the second channel as well.

Affected SAR Section: 7.7.1.5

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the display features and shield grounds have no relationship to any analyzed accident initiator, are not required for safe plant shutdown, did not impact startup functions required by Technical Specifications, and maintained original system configuration and function while reducing component thermal stress in the processor drawer and noise susceptibility; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the possible malfunctions of processor drawers without the display features are no different than those possible before the modification and no new accident initiators were created by this modification; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since no there was no margin of safety as discussed in the bases related to the display functions of the startup channels.

Removal of Chemical Volume Control System (CVCS) Letdown Flow
Control Valve Packing Leak Off Lines

This plant change capped the packing leak off lines for the 2CV-4816 and 2CV-4817 CVCS letdown flow control valves. These valves are non-Q, process control valves that control letdown flow and maintain a constant level in the pressurizer. Capping the packing stem leak off line allows maintenance to pack the deep stuffing box valve bodies with less packing, fewer spacer rings, and no lantern rings, resulting in less friction between the valve stem and the packing, and improved performance.

Affected SAR Figure: 9.3-4
Section: 9.3.4.3.14

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since 2CV-4816 and 2CV-4817 are redundant components that may be isolated from the letdown system or from one another if required, have no safety functions, and are normally isolated from the CVCS System during any type of accident; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since capping the packing leakoff lines in these valves does not significantly change the operating characteristics of the valves or the CVCS Letdown System; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there are no margins of safety associated with the stem packing leakoff lines for the 2CV-4816 and 2CV-4817 letdown flow control valves in the Technical Specification bases.

Auxiliary Cooling Water to Electro Hydraulic Control Cooler Piping

This plant change replaced the Auxiliary Cooling Water (ACW) supply and return piping from the Electro Hydraulic Control (EHC) coolers with stainless steel piping and replaced all valves with stainless steel ball valves (with the exception of the temperature control valve.) The original piping material was carbon steel. The intent of this change was to prevent future pipe wall thinning concerns resulting from corrosion and to minimize pipe clogging from silt and corrosion products.

Affected SAR Figure: 9.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the piping upgrade resulted in a higher pressure class and increased system reliability, the ACW System is automatically isolated from the Seismic Category 1 Service Water System during Safety Injection Actuation or Main Steam Isolation, and this change affected only non-safety related equipment; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since any failures were bounded by existing accident analyses; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no defined margins of safety for the ACW or EHC Systems in the Technical Specification bases.

Reactor Coolant Pump Oil Level Transmitters

This plant change replaced the Foxboro Reactor Coolant Pump (RCP) oil level transmitters with Rosemount differential pressure transmitters. The amplifier electronics external to the Foxboro transmitters were removed since the Rosemount transmitters included the appropriate amplifiers internally. The enclosures housing the signal converters were retained and relabeled as terminal boxes. Unused conductors between the RCP motor and the signal converter enclosures were spared. A calibration access point was provided on the variable leg instrument line for both the upper and lower transmitters to better facilitate calibration of the instruments. In addition, the lower reservoir drain valves were removed and plugged due to interferences with the motor/pump alignment check device during motor changeouts.

Affected SAR Figures: 5.5-2, 8.3-69

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification had no impact on the function of the RCP motor or its ability to provide adequate coastdown characteristics and did not increase the probability of motor failure by either mechanical or electrical means; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the new components perform the same function as the equipment that was replaced and these changes did not introduce any new equipment failure modes for the RCP motor; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since these modifications did not change the RCP operating configuration for the various plant operating modes and, therefore, did not reduce any margins of safety defined in the Technical Specification bases.

Install Clean Out Access in the Line from the
"A" Waste Tank to the "A" Waste Pump

This plant change removed a pipe elbow on the discharge line from the 2T20A Waste Tank to the 2P52A Waste Pump and replaced it with a pipe tee and blind flange to allow access for future clean out of the line.

Affected SAR Figure: 11.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since an in-service leak check performed after installation of the blind flange demonstrated integrity of the joint, the existing evaluation assumes that spills, leaks, or pipe breaks can occur during normal operations in various components over the lifetime of the plant, and the probability and consequences of a failure at the newly installed tee would be bounded by the existing considerations; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since 2T20A is not classified as equipment important to safety, the newly installed pipe tee is not in the immediate vicinity of any equipment important to safety, and no new failure mode was created; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since no margins were defined in the bases which would be impacted by this change.

Reactor Coolant Pump Speed Interlock

This plant change deleted the zero speed indication and four indicating lights in Control Room (CR) Panel 2C04 and the 90% speed interlock in the Reactor Coolant Pump (RCP) lift pump circuit. The RCP zero speed indication and 90% speed interlock in the RCP oil lift pump circuit were found to be unreliable and difficult to maintain.

Affected SAR Figures: 5.5-2, 8.3-75

Section: 5.6.5.6

Table: 5.5-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the RCP lift pumps were not evaluated as accident initiators, this change did not affect any equipment needed for accident mitigation, and installation of this modification did not affect the assumed function of any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the installation of this modification did not affect the assumed function of any equipment important to safety and did not create new accident initiators or exposure to failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety specified for the RCP oil lift pumps in the Technical Specification bases.

Abandoned Electric Heaters

This plant change abandoned in place two electric unit heaters that were no longer required to provide area heating. The heaters were in disrepair and replacement would have provided no benefit since heat is now supplied by the Auxiliary Building heating system. This modification involved deterring the cabling, installation of end caps, and sparing the breakers in the power panel.

Affected SAR Figure: 9.4-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these components were not credited with initiating or mitigating any previously analyzed accidents and this modification did not affect the function, operation, or reliability of any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not create any circumstances not bounded by previous accident evaluations; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification did not alter the operation, function, or reliability of the heating system or any other system.

Volume Control Tank Operating Pressure

This plant change lowered the normal operating pressure of the Volume Control Tank (VCT) from 35 psig to 15 psig. The low pressure alarm setpoint was lowered from <31 psig to <10 psig. Lowering the VCT operating pressure and low pressure alarm setpoint affected only the process function and not the safety related characteristics of the Chemical Volume Control System (CVCS).

Affected SAR Figure: 7.4-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since VCT pressure does not affect the safety related characteristics of the CVCS or its ability to supply borated water to the Reactor Coolant System; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the components in the CVCS are fully capable of operation with the VCT at an operating pressure of 15 psig and the lower normal operating pressure and alarm pressures remained bounded by those accidents previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specification bases did not define any margins of safety for the VCT.

Swing High Pressure Safety Injection Pump Interlock

This plant change modified the auto start portion of the High Pressure Safety Injection (HPSI) pump control circuits by replacing the old handswitches with new handswitches that have an additional normally closed contact in the "pull to lock" position. The new handswitches were installed in the same location on Control Room Panels 2C16 and 2C17. The handswitch contact will serve as an interlock in the swing pump Safety Injection Actuation Signal (SIAS) auto start logic such that the swing pump will not auto start on the receipt of an SIAS unless either the A Pump or the B Pump handswitch is in the "pull to lock" position. This change also disconnected the 152 "B" contact interlocks from the A and B pump feeder breakers that were used to prevent the swing pump from auto starting if either the A or B pump was running.

Affected SAR Figure: 7.3-10
Section: 6.3.2.20.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not change the ability of the HPSI pumps to automatically inject borated water into the Reactor Cooling System upon receipt of an SIAS in the event of a Loss of Cooling Accident (LOCA); or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not create any mechanisms that would cause a LOCA or interface with any equipment in such a manner as to create an accident that has not been previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there was no margin of safety discussed in the Technical Specification bases concerning the HPSI pump control circuits.

Stator Leak Monitoring System Installation

This plant change installed the necessary piping modifications to the Stator Water Cooling System (SWCS) to allow final installation of the Stator Leak Monitoring System (SLMS) during full power operations. The SLMS calculates and records the volume of hydrogen that collects in the SWCS to check for the deterioration of stator winding hydraulic integrity and permits oxygenation of the SWCS by inducing an inflow of fresh air.

Affected SAR Figure: 3.2-6

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the SWCS was not evaluated as an initiator or mitigator of any analyzed accident and these modifications did not influence any failure modes for equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the design of the SWCS was consistent with the established standard of this plant and no new failure modes were introduced with the addition of this equipment; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Setpoint Adjustment of the Service Water Pump Discharge Strainer
Differential Pressure Indicating Switches

This plant change lowered the set-point of the Service Water (SW) pump discharge strainer differential pressure indicating switches 2PDIS-1426, 2PDIS-1432, and 2PDIS-1438 from 10 psid to 8 psid. Lowering the alarm set-point provides earlier indication in the Control Room of potentially degraded SW System conditions.

Affected SAR Figure: 7.4-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these changes did not affect the SW System design or operation; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the functions and operating modes of the SW System were not affected by the reduction in the alarm set-point value and no new failure modes were created; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification did not affect the function, operation, or capability of the SW System or any other system.

Condenser Hotwell Sample Pump Pulsation Dampeners

This plant change replaced the pulsation dampeners for the condenser hotwell sample pumps. The previously existing dampeners utilized synthetic rubber diaphragms which were susceptible to developing leaks. The new dampeners are constructed with a stainless steel welded bellows assembly which requires much less maintenance. The new style pulsation dampeners were mounted to the floor instead of being supported by the discharge piping of the pump and, therefore, required some minor field tubing configuration changes.

Affected SAR Figure: 9.3-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the pulsation dampeners were not evaluated as initiators or mitigators of any analyzed accident and this modification did not affect any equipment important to safety or introduce any new modes of failure; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification was bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no defined margins of safety for this equipment in the Technical Specification bases.

Installation of a Pressure Gauge on the Letdown System

This plant change installed a pressure gauge on the Letdown System between the back pressure control valves and the purification filters. This pressure gauge provides a means of determining the letdown pressure during normal and transient conditions, and will be used during shutdown cooling purification operations.

Affected SAR Figure: 9.3-4
Table: 9.3-22

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the letdown portion of the Chemical Volume Control System (CVCS) is isolated during an accident and the addition of the pressure gauge did not impact the operating characteristics of any safety related equipment or systems; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the CVCS will continue to operate within the limits of the components and system and any possible failures would remain bounded by previously evaluated accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there are no margins of safety for the Letdown System defined in the Technical Specification bases.

Heater Drain Pump Time Delay Relays

This plant change installed time delay relays in the low tank level and high pump differential trip circuits of the heater drain pumps. Heater Drain Pump 2P-8A had a history of tripping due to spurious actuation of the low heater drain level trip. Although safe and continuous operation of the plant is possible with the loss of one or both heater drain pumps, a heater drain pump trip puts an undesirable transient condition on the operation of the Feedwater System. This change was added to the trip circuits of both pumps to avoid having a unique logic for each pump. Any trip signal, spurious or actual, will still actuate the Control Room annunciator alarm.

Affected SAR Figure: 7.3-9

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the alarms associated with the trips were not altered and the addition of the time delay relays did not change the design or function of the Heater Drain System; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the function and design of the heater drain pumps were not altered and the previously evaluated failure modes were not changed; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases for the Heater Drain Pump System.

Removal of the 2T-68 Reactor Drain Tank Low Pressure Alarm

This plant change removed the low pressure alarm for the Reactor Drain Tank 2T-68. The normal pressure for the tank was 0.5 psig, while the low pressure alarm setpoint was <1.5 psig. The low pressure alarm had become a nuisance alarm in the Control Room and was removed since it provided no value to the operator. The pressure alarm was non-Q and did not provide any other input signals or interlocks with any other components or systems.

Affected SAR Figure: 11.2-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since failure of the reactor drain tank remained bounded by previously evaluated accidents and removal of the low level alarm did not impact any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the reactor drain tank is a non-Q component whose failure would have no effect on any safety related systems or structures; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety for the reactor drain tank or the low pressure tank alarm as defined in the Technical Specification bases.

Condensate and Feedwater Enhancements

This plant change corrected operational problems with the Condensate and Feedwater System and provided for maintenance activities on the condensate pumps without cutting and rewelding piping. Modifications included the installation of 3/4" and 3" flanges in the condensate pump discharge and suction vent piping and the addition of 3/4" valves and bypass piping to allow for proper warm-up of a main feed pump during single pump operation. This plant change also installed a 6" globe valve and new Fisher controllers to allow automatic operation of the condensate supply to the startup and blowdown demineralizers.

Affected SAR Figures: 10.4-2, 10.4-3, 10.4-7

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not change any of the design bases of the Condensate and Feedwater System (CFWS) or the Startup and Blowdown Demineralizer (SUBD) System, the SUBD System and the affected section of the CFWS are not relied upon for accident mitigation, and these changes were made only to non-safety related components; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since existing design criteria and accident analyses were not challenged or changed by any of the modifications of this package and any possible failures were bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no defined margins of safety for the CFWS or the SUBD in the Technical Specification bases.

Stator Water Cooling Skid Valve Additions

This plant change installed three valves on the stator water cooling skid. A vent valve was installed on the Auxiliary Cooling Water (ACW) outlet line, a second valve was installed on the cooling line for sample collection, and a third valve was added for venting purposes when draining or filling the stator de-ionized water vessel. All installed piping met or exceeded the pressure requirements of the original design specification.

Affected SAR Figures: 3.2-6, 9.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these modifications to the Stator Water Cooling System and the ACW System met or exceeded original design specifications, these systems were not credited as mitigators of any previously analyzed accident, and these modifications did not impact any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since failure modes for the new configuration are the same as those of the old configuration; therefore, previous accident analyses are applicable and bounding; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the equipment affected by this change was not addressed in the Technical Specification bases.

Addition of Ground Fault Sensors to a 125 VDC Distribution Panel

This plant change installed six stationary ground fault sensors in 125 VDC Distribution Panel 2D02, provided access to the panel's bus voltage for portable instruments, and provided access to the system ground alarm relay for a portable fault detector. The fault detector will verify circuit integrity, manifested through magnetic balance, and facilitate corrective maintenance in the event of a ground fault in the distribution system. The added ground fault sensors will normally stay de-energized and remain attached to the selected feeder conductors and will serve as stand-by input devices to measure the circuit magnetic field imbalance.

Affected SAR Figure: 8.3-16

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the components added by this change are not safety related, are not accident initiators, and will not affect equipment needed for accident mitigation; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remains bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there was no applicable margin of safety defined in the Technical Specification bases.

Turbine Gauge Panel

This plant change relocated turbine control instrumentation for improved operator visibility and access. The suction and discharge pressure gauges for the turbine driven emergency feed pump were moved to an area that can be seen by an operator controlling the turbine manually from the trip and throttle valve. A resonant reed tachometer, to provide local turbine speed indication, was added to allow monitoring by an operator controlling the turbine speed from the trip and throttle valve during emergency operations when power is unavailable. Quick disconnect couplings were added to local pressure gauges and to six Emergency Feedwater (EFW) header locations to allow use of calibrated gauges for equipment testing. The turbine control panel was relocated to the west wall of the EFW pump room. Three obsolete governor oil test valves were removed.

Affected SAR Figures: 10.2-4, 3.6-66, 3.6-67, 3.6-68, 8.3-59

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change relocated instrumentation for improved operator visibility and access and did not revise the configuration of the EFW System from its previous configuration; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not create any new modes of failure and remained bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification did not change the design bases, system description, or safety evaluation information of the EFW System.

Steam Generator Blowdown to the Regenerative Waste Management System

This plant change installed approximately thirty-five feet of 3" carbon steel piping to cross-connect the Steam Generator Blowdown System to the regeneration waste transfer header in the Auxiliary Building Extension. This cross connect permits routing of steam generator blowdown flow directly to the regenerative waste tanks without processing it through the startup and blowdown demineralizers.

Affected SAR Figures: 10.4-7, 11.2-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since neither the Blowdown System or the Regenerative Waste System were credited with initiating or mitigating any previously analyzed accident and neither system's function is considered important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by those accidents previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Moisture Separator Reheater Drain Tank and Condenser Hotwell Level Indicators

This plant change replaced the sight glasses on the Moisture Separator Reheater (MSR) drain tanks and on the condenser hotwells with magnetic level indicators. The sight glasses did not provide adequate level indication due to clouding of the gauge glass. The replacement indicators consist of a float chamber with an externally attached fluorescent indicator. Since the indicator is completely isolated from the fluid in the float chamber, the unit provides maintenance free level viewing.

Affected SAR Figures: 10.2-5, 10.4-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since replacement of the gauge indicators with magnetic indicators did not alter the design, function, or operation of the level indicators or any associated valves and piping; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not change the function of the affected systems and did not impact any equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined for the main condenser hotwell level indication system or the MSR drain tank level indication system.

Changeout of Components on Lines 2HBD, 2EBD, and 2VTS to 2-1/4% Cr-Moly Material

This plant change replaced approximately 740 linear feet of piping and associated fittings in the low pressure heater vents and drains due to problems associated with Flow Accelerated Cracking (FAC). The replacement piping made no changes to size or geometry of the lines, but used a piping material of 2-1/4% Cr-Moly which has a higher resistance to FAC.

Affected SAR Figure: 10.4-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the affected system is non-radiological, contains no equipment important to safety, did not affect the mitigation of any analyzed accidents, and the replacement piping is more reliable, meets the original design specification assumptions, and did not change any system interfaces; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since no new failure modes were created by this modification; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since no analyses were affected that could alter the margins of safety defined in Technical Specifications.

Fire Alarm Test Valve

This plant change replaced the 1/2 inch three-way alarm valves on two fire water control valves located in the Diesel Fuel Storage Vault. The three-way valves were obsolete and were replaced with two ball valves. Installation of these valves did not change the testing requirements or design basis of this system.

Affected SAR Figure: 9.5-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not change the function of the Fire Water System or its ability to perform in accordance with its design and did not change any failure modes for equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously evaluated accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Local Pressure Indicator on the Volume Control Tank

This plant change added a local pressure indicator for the Volume Control Tank (VCT) to provide the operator with a VCT pressure indication during the addition of hydrogen to the tank. The pressure indicator, installed on root valve 2CVC-4866, had no impact on the function of the VCT or any of the safety related characteristics of the Chemical and Volume Control System (CVCS).

Affected SAR Figure: 9.3-4
Table: 9.3-22

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the addition of a pressure indicator did not affect the operating characteristics of the VCT and the VCT is isolated during an accident by a Safety Injection Actuation Signal; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification had no affect on any of the accident scenarios postulated in the SAR and the added pressure indicator remained bounded by the previously evaluated accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the safety related portion of the CVCS was unaffected by this change and the installation of the VCT pressure indicator did not have any effect on any defined Technical Specification bases.

Charging Pump Packing, Plunger, and Seal Water Return Pressure
Control Valve Modification

This plant change installed new packing and plungers and replaced the seal water return pressure control valves with manual throttle valves on all three charging pumps. The manual throttle valves provide more flow and improved pressure control for the charging pump packing area.

Affected SAR Figure: 9.3-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the Seal Water System was not evaluated as an initiator or mitigator of any evaluated accidents and the installation of the manual throttle valve on the seal water return did not degrade the capabilities of the system or affect the operability or performance of the charging pumps; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not introduce any new modes of failure and did not increase the possibility of a safety related equipment malfunction; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no defined margins of safety concerning the Seal Water System.

Deletion of Local Temperature Indicators

This plant change removed four temperature indicators from the post accident hydrogen analyzer. All four of these instruments were locally mounted, dial type thermometers that provided no output other than local temperature indication. The hydrogen analyzers are operated from the Control Room without using the information provided by these instruments. Removing the temperature indicators did not affect the hydrogen analyzers' ability to meet its design function.

Affected SAR Figure: 9.4-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these instruments were not credited as initiators of any previously analyzed accident, removal of the temperature indicators did not degrade the functional capabilities of the hydrogen analyzers, and this modification did not negatively impact any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously analyzed accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specifications bases associated with these local temperature indicators and these indicators are not needed to operate the hydrogen analyzers.

DC Voltage Monitor Relay Installation

This plant change was implemented to cause the green train AC powered Emergency Feedwater (EFW) valves to remain open during a loss of green train DC power by placing a DC voltage monitoring relay in the control circuit for relays 2CV-1036-2 and 2CV-1038-2. If DC power was lost to the control circuit, the monitoring relay would de-energize and open a relay contact in the closing portion of the valve control circuit. The opening circuit would remain operable for an Emergency Feedwater Actuation Signal. A Main Steam Isolation Signal would not close the valve if DC power was lost; however, the associated red train valves would remain operable. Therefore, a loss of green train DC power would only affect the operability of the green train EFW System and the red train EFW System would be unaffected.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the new voltage monitoring relay has the same failure modes as the relays previously installed and redundancy of components was provided to guarantee operation in the event of a single failure of a mechanical or electrical component within the system; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by those accident scenarios previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification did not impact any margins of safety as defined in the Technical Specification bases.

Startup Transformer Regulator Timer Bypass

This plant change installed circuitry to allow a fast transfer from Startup Transformer (S/U) #3 to S/U #2. The installed circuitry allows a S/U #2 Regulator Timer bypass to occur upon a S/U #3 lockout in addition to the existing Generator Lockout bypass. This plant change does not allow S/U #2 to be removed from "pull to lock"; however, should a scenario develop where a bus needs to be placed on S/U #3 during power operations, the circuitry will exist to allow S/U #2 to be removed from "pull to lock" and used as a backup "fast transfer" source to S/U #3.

Affected SAR Figure: 8.3-36

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the modifications performed by this plant change did not adversely impact any systems credited with initiating or mitigating accidents previously analyzed in the SAR and the S/U #2 regulator timer bypass circuit is physically separated and electrically isolated from any safety related equipment or systems; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not introduce any new seismic II/I concerns or create any new mechanism by which a piece of equipment important to safety could be caused to fail; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification did not adversely impact any margins of safety defined in the Technical Specification bases.

Chemical and Volume Control System Stem Packing Leak Off Lines

This plant change capped the packing leak off lines for the Chemical and Volume Control System (CVCS) letdown back pressure control valves and the volume control tank divert valve. Capping the packing stem leakoff line allows maintenance to pack the deep stuffing box valve bodies with less packing, spacer rings, and no lantern rings resulting in less friction between the valve stem and the packing. This change in valve packing is recommended in EPRI Report NP-5697.

Affected SAR Figure: 9.3-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these valves have no safety function, are normally isolated from the CVCS during any type of accident, and capping the packing leakoff lines had no effect on any safety related equipment; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since capping the packing leakoff line valves did not change the operating characteristics of the valves or the CVCS and did not create any new modes of failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there are no margins of safety associated with the stem packing leakoff lines for the letdown flow control valves defined in the Technical Specifications bases.

Relocation of Wire Mesh Door

This plant change relocated a locked high radiation wire mesh door from its entry to Rooms 2070 and 2072 to a new location of entry to Room 2072 only. Room 2072 is a high radiation Room and Room 2070 is not. Relocation of the door eliminated the need to obtain a key for entry into Room 2070. Since hard key is required for entry to Room 2072, the alarm switch for the door is no longer used and was removed as part of this modification.

Affected SAR Figure: 8.3-65

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not affect any equipment or systems credited with initiating or mitigating any previously analyzed accidents and did not affect the operation of any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the door will continue to provide its intended function and access to Room 2072 will continue to be monitored by Health Physics personnel; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Main Steam Isolation Valves (MSIVs) Above Seat Drain Steam Traps
2F-310 and 2F-311

Plant Engineering Action Request 87-0428 evaluated the operation of MSIVs above seat drain traps 2F-310 and 2F-311 and determined that these traps are only required to be in service during plant heat-up. Because the discharge from these steam traps will flash during normal operation, these traps will be isolated when entering Mode 3.

Affected SAR Figure: 10.2-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the steam traps are not required to perform any safety function and are only required to be in service during plant heat-up and failure of the traps, or associated components and piping, will not effect the consequences of any evaluated accidents; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the effect of this valve alignment change is limited to the MSIVs above seat drain traps, no new accident types or failure modes were created by changing the valve alignment of the isolation valves, and the failure of any component associated with these valves remained bounded by previous accident analyses; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the valve alignment did not effect any components of the Main Steam System that could reduce the margin of safety defined in the Technical Specification bases for the system.

Safety Shower Stations

This drawing revision was incorporated to reflect the "as built" configuration of four Domestic Water System safety shower stations, two in the Caustic and Acid Storage Tank Building and two in the corridor leading to the emergency diesel generators. These stations had flow switches installed, but were never connected for use. The alarms for these stations were listed as inactive components and were never functional. The inactive instrumentation was physically deleted, the flow switches were removed, and pipe plugs were installed in their place.

Affected SAR Figure: 9.2-7

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these shower stations were not credited with initiating or mitigating any of the accidents analyzed in the SAR and the affected shower stations and the Domestic Water System are not safety related; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not change the function or operation of the safety shower stations and did not create any new failure modes that could impact surrounding equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there was no defined margin of safety for the Domestic Water System presented in the Technical Specification bases.

Warehouse Hose Reel Location

This plant engineering action revised the outside fire water loop drawing to correct a discrepancy concerning the actual location of a hose reel. The drawing depicted the hose reel teeing off of the Fire Water System riser on the upstream side of an alarm check valve, when actual field installation was on the downstream side of a control valve. The operation of the hose reel was unchanged.

Affected SAR Figure: 9.5-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the design, operation, and failure modes of the hose reel were not affected by this change and there was no safety related equipment in the area of this hose reel that could be affected by a line break or misoperation of the reel; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this component and the Fire Protection System remained bounded by previously evaluated accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety with respect to this portion of the Fire Protection System defined in the Technical Specification bases.

Isolation of Letdown Flow Through Boronmeter

This plant engineering action request isolated letdown flow through the Chemical Volume and Control System (CVCS) boronmeter to allow better flow control through the Letdown Radiation Monitor. The boronmeter was previously abandoned in place by Design Change Package 89-2017. Isolation of the flow through this meter did not affect the function of the CVCS or any of the safety related characteristics of the system.

Affected SAR Figure: 9.3-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change did not affect the operating characteristics of the CVCS or its ability to mitigate accidents; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change remained bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change did not alter any of the Technical Specification requirements for monitoring the boronmeters radioactive source for leaks or external contamination.

Vent Valves on Fullers's Earth Filters

This drawing revision reflects the as-built condition of the Electro-Hydraulic Cooling (EHC) System by showing the vent valves on the Fuller's Earth Filters. These valves serve no safety related function.

Affected SAR Figure: 3.2-6

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report (SAR) since the EHC valves were not evaluated as an initiator or mitigator for any accident and do not impact equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since no new failure modes were introduced and the EHC System configuration remained bounded by existing accident analyses; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Diesel Fuel Oil Day Tank Containment Drain Valves

This plant engineering action request added two valves, currently installed in the containment walls surrounding the emergency diesel generator fuel oil day tanks, to the appropriate drawings. These valves allow the containment area to be drained if the fuel oil day tanks should leak or burst. The valves serve no safety function and do not impact the operation of any system.

Affected SAR Figure: 9.5-8

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these valves were not evaluated as accident initiators or mitigators and do not impact the operation of any system or component; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these valves have been installed since construction but were inadvertently left off the appropriate drawings and were never assigned component numbers; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases for these components.

Isolation of Chilled Water to the 2VCC-24 Cooling Coil for the
New Hot Tool Room

This plant engineering action request resolved a slip hazard created by condensation draining from the 2VCC-24 cooling coil drain pan to the center floor drain in the new Hot Tool Room. The cooling coil was installed when the room was a decontamination room and had higher heat loads. Since additional cooling is no longer necessary for the current usage of the room, chill water to 2VCC-24 was isolated.

Affected SAR Figure: 3.2-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since there was no longer a need for the additional cooling, isolation of the coil did not create any new failure modes for the main chilled water system, and the change did not affect the function, operation, or reliability of the Main Chilled Water System or any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the coil isolation did not involve any initiator or failure not presently considered in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Chilled Water System was not discussed in any Technical Specification basis.

Turbine Generator Lube Oil Cooler Drain Valves

This plant engineering action request added two existing gate valves to the appropriate drawing. These valves, located in the heat exchanger shell drain lines off the turbine lube oil coolers, were identified by field verification. These valves are required to allow isolation of the drain line when attaching hoses to drain the oil into a collection facility.

Affected SAR Figure: 3.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these valves were not credited as initiators or mitigators for any previously analyzed accident scenario and do not perform a safety function or interact with any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the addition of these valves to the drawing did not change the function, operation, or failure modes of any equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specification bases did not contain any margins of safety that would be affected by the addition of these valves.

Reactor Makeup Water Tank Temperature Control and Alarm

This plant engineering action request corrected some discrepancies between the actual settings of the Reactor Makeup Water (RMW) tank temperature indicating switches 2TIS-4961 and 2TIS-4963 and the setting descriptions in plant procedures and on logic prints. Indicating switch, 2TIS-4961, was set to open the steam supply valve to the RMW tank heating coils when water temperature in the tank drops below 90 degrees and to close the valve at temperatures above 110 degrees. Indicating switch, 2TIS-4963, was set to annunciate an alarm in the Control Room at temperatures below 85 degrees and above 115 degrees. Procedures and logic prints were updated to reflect these setpoints.

Affected SAR Figure: 7.4-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since RMW Tank temperature has no affect on the safety related characteristics of any system that it supplies and, during an accident, the RMW supply is isolated by a Safety Injection Actuation Signal; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the higher RMW temperature remained bounded by previously evaluated accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specification bases did not define any margins of safety for the RMW tank temperature.

Circulating Water Pump Motor Bearing Temperature Setpoint

This plant engineering action request changed the high temperature alarm setpoint for the Circulating Water Pump motor thrust and upper guide bearings from 155 to 175 degrees. The new alarm setpoint allows operation of the equipment without nuisance alarms and establishes a 25 degree margin between the alarm setpoint and the vendor's recommended maximum operating temperature.

Affected SAR Figure: 10.4-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the Circulating Water System is not a safety system and the change associated with this setpoint has no impact on any of the postulated accidents analyzed in the SAR; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this setpoint change did not change the function or failure mode of the Circulating Water System and did not affect any equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety for the Circulating Water System defined in the Technical Specification bases.

SECTION III

TEMPORARY MODIFICATIONS

Feedwater Pump 2P-1A Outboard Seal Water Injection

A temporary cooler and the required connections to and from the chilled water system was installed on the feedwater pump 2P-1A outboard seal injection supply line as a temporary modification.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since feedwater pipe integrity was not compromised by the installation of the external cooler and all connections to the chilled water system were consistent with chilled water piping specification requirements; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since installation of the temporary cooler and hoses did not create any new type of accident; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since neither the feedwater pump seal operation or the chilled water operation were addressed in the Technical Specification bases.

Control Element Assembly (CEA) 35 RSPT #2

This temporary modification disconnected the input from failed Reed Switch Position Transmitter (RSPT) #2 on CEA #35 to the Core Protection Calculator (CPC) "D" and Control Element Assembly Calculator (CEAC) #2. The modification then simulated CEA #35 as a full out signal on the two calculators thus eliminating spurious alarms and channel trips.

SAR sections 15.1.0.1; 15.1.1; 15.1.2; 15.1.3; 7.2.1.1.2 and table 7.2-5 will be rendered temporarily inaccurate by this TM.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this temporary modification did not degrade the ability of the Core Protection Calculators (CPCs) or Control Element Assembly Calculators (CEACs) to provide protection against Anticipated Operational Occurrences and the modification only affected the indication of CEA #35 position, not the method by which the CEA is held or moved; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this temporary modification affected only the CEA position sensor inputs to CEAC #2 and CPC "D" and since the simulated signal is essentially equal to the signal that would be used by the CPC when an RSPT fails; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the response of the CPCs and CEACs to all required CEA events was maintained.

2P32B AND 2P32D RCP Axial Position Probe Defeat

This temporary modification documented removal and re-installation of cards in panel 2C404 with the ribbon connectors disconnected so that the annunciator alarms for two axial position probes that failed on the Reactor Coolant Pumps (RCPs) were defeated.

SAR Table 5.5-1 and Figure 5.5-2 are rendered temporarily incorrect by this TM.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the alarms on the axial position probes provided a monitoring function only, were not evaluated as initiating components for accidents, and were not required to mitigate any accident; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change only affected a monitoring system; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since no reference to the Reactor Coolant Pump Monitoring System is contained in any Technical Specification bases.

Blocking Open of Control Element Drive Mechanism (CEDM) Fan
2VSF-35A Discharge Damper

This temporary modification was installed on CEDM Fan "A" discharge damper, which failed closed during operation. This damper was equipped with a spring-return-to-shut type actuator. Upon failure of the motor/power the damper is automatically closed by the spring. This modification de-tensioned the spring and blocked movement of the actuator shaft. This removed the closing force provided by the spring and blocked open the damper by locking the shaft.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification maintained the system in an operable condition, did not create any new failure modes, and did not affect the function of any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not introduce any failure modes or create any circumstances not bounded by previous evaluations; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this modification maintains the CEDM cooling system as designed by maintaining all three cooling units in operation.

Charging Pump Modifications

This temporary modification installed a Garlock style of packing, Titanium Nitride coated plungers, and replaced the seal water return pressure control valve with a manual throttle valve on Charging Pump 2P-36B. The seal water return pressure control valve was replaced to provide more flow and better pressure control for the charging pump packing area.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the Seal Water System was not evaluated as an initiator or mitigator of an accident and these modifications did not degrade the system or affect the operability or performance of the charging pump; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the operability of the Seal Water System and the charging pump was unaffected; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Charging Pump Modifications

This temporary modification installed a Garlock style of packing, Titanium Nitride coated plungers, and replaced the Seal Water return pressure control valve with a manual throttle valve on Charging Pump 2P-36C. The seal water return pressure control valve was replaced in an attempt to provide more flow and better pressure control for the charging pump packing area.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the Seal Water System was not evaluated as an initiator or mitigator of an accident and these modifications did not degrade the system or affect the operability or performance of the charging pump; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the operability of the Seal Water System and the charging pump was unaffected; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Auxillary Cooling Water (ACW) Valve Replacement

This temporary modification involved replacement of motor operated control valve 2CV-3609 with a manually operated gate valve, hold carding the power breaker for the valve, and lifting and taping the power and control leads for the valve.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the ACW System is not a safety system, there was no effect on any postulated accidents, and there were no changes made that would involve any equipment, systems or components important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not change the failure modes, function, or operating modes of the ACW System; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there are no safety limits or bases defined for the ACW System.

Reactor Coolant Pump Lower Motor Bearing Vibration Monitor

This temporary modification installed jumpers across the defeat switch of the "A" Reactor Coolant Pump (RCP) Lower Motor Bearing Vibration Module. The vertical vibration channel failed on low probe gap voltage and the horizontal channel was already defeated due to fluctuating gap voltage. Due to the design of the monitoring module, the defeat switch only works on one channel at a time. This modification allowed both of the lower motor bearing channels to be defeated to clear the Control Room annunciator for the RCP vibration trouble alarm.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not affect the probability of RCP bearing malfunction, but allowed for continued monitoring of the RCP without false alarm signals from the failed probes; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there are no defined margins of safety for the RCPs in the Technical Specification bases.

Emergency Feedwater Drain Valve Removal

This temporary modification removed one of the two emergency feedwater drain valves located in the Turbine Building west of the main condenser. This valve added mass and length to the moment arm comprised of the vertical drain line. Removal of the valve reduced vibration of the drain line, but did not affect operation of the system.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification was consistent with the requirements of the Piping Standard, did not affect the function or operation of the Auxiliary Feedwater System, and did not impact any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not change the function or operating modes of the Auxiliary Feedwater System and did not introduce any new modes of failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Alternate Fire Water for the Containment Building

This temporary modification provided an alternate fire water source for the Containment and Auxiliary Buildings. The normal flow path of the water to these areas was isolated to allow maintenance to be performed on Fire System valves. This modification consisted of connecting a 2 1/2" fire hose to a hydrant located west of the Maintenance Facility. The hose was then routed to the Plant Heating Boiler Room and connected to valve 2FS-58. The fire hose installed in this modification was designed for fire protection use per NFPA-1961. Calculation 95-E-0064-01 was performed to ensure that adequate flow was available to the most remote area in the Containment Building through the 2 1/2" fire hose connection.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this system remained functional and capable of performing in accordance with its design and the section of fire water piping that was modified by this change was in an area that contained no safety related equipment which could be damaged by water impingement; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not introduce any new modes of failure and remained bounded by those accident scenarios previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specification bases did not specify a margin of safety with respect to this section of the Fire Water System.

Fuel Handling Exhaust and Containment Purge Power Supply

This temporary modification was installed to provide power to the fuel handling exhaust and the containment purge to allow core alterations with the green train de-energized.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not impact any equipment credited as an initiator or mitigator of an analyzed accident and did not negatively impact the function of any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously analyzed accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since installation of this modification did not cause any equipment required to be operable by Technical Specifications to become inoperable.

Fire Detection Panel Power Supply

This temporary modification provided a redundant power supply to several fire detection panels to reduce the probability of a malfunction of the fire detection system while the alternate power supply to the panels was unavailable. This modification met the NFPA requirements for redundant power supplies for fire detection panels.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the installation of this modification did not impact the initiation or mitigation of any previously analyzed accident and did not impact the assumed function of any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not change the function or operation of any plant equipment; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety for fire detection systems defined in the Technical Specification bases.

Power for Fire Detection Panels

This temporary modification provided a redundant power supply to a fire detection panel to reduce the probability of a malfunction of the fire detection system while the alternate power supply to the panel was unavailable. This modification met the NFPA requirements for redundant power supplies for fire detection panels.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the installation of this modification did not impact the initiation or mitigation of any previously analyzed accident and did not impact the assumed function of any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not change the function or operation of any plant equipment; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety for fire detection systems defined in the Technical Specification bases.

Backup Cooling Water to the Spent Fuel Pool Cooling Heat Exchanger

This temporary modification installed a hose to cross connect the Service Water (SW) System with the Fire Water System to provide backup contingency cooling water to the Spent Fuel Pool (SFP) cooling heat exchanger in the event of a loss of all SW pumps. This hose, rated at 150 psig, was attached to the Fire Water System at a spare four inch valve located in the North/South hallway in the Auxiliary Building, routed to the SW piping pit, and connected to the Loop 1 supply header drain. This modification provided a contingency method for Operations to re-establish SFP cooling upon a complete loss of the SW pumps.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not impact any components credited with initiating or mitigating those accidents previously analyzed in the SAR and did not negatively impact equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously analyzed accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases that were affected by this modification.

Low Pressure Nitrogen Leak

This temporary modification removed the low pressure nitrogen line in the Auxiliary Building, Elevation 335', and resupplied the low pressure line from the high pressure supply line via a spare pressure reducer. This modification will allow the leaking low pressure line to be replaced with stainless steel tubing and additional fittings.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this modification did not affect any accident initiators, did not affect the function of the low pressure or the high pressure nitrogen system, created no new failure modes, and did not affect any safety related equipment; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification did not create any circumstances not bounded by previous evaluations; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the installation of this temporary modification did not affect any margins or limits as defined in the bases for any Technical Specification.

Margin to Saturation Calculator Temperature Signal Removal

This Temporary Modification (TM) installed two 250 OHM resistors in parallel across the input terminals of temperature transmitter 2TT-4712-4 to simulate a Resistance Temperature Detector (RTU) signal to the channel 2 Margin to Saturation (MTS) Calculator. Temperature Element 2TE-4711-4B, one of four temperature inputs fed into a high select circuit which chooses the highest of the four and compares it to a calculated saturation temperature to develop the margin to saturation value, failed high causing erroneous readings on the channel 2 MTS Calculator. The simulated signal will allow the MTS calculator to recognize that an input is available, but at a temperature of approximately 150 F so it will not be selected by that calculator. The input to the Safety Parameter Display System (SPDS) PT curve was disabled so that the SPDS will select the real cold leg temperature.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the removal of this temperature element was not credited with initiating an accident, elimination of one signal did not cause any single failure concerns, and the function of the system was not affected; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the installation of this TM did not impact current failure modes or create new ones, or;
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since elimination of a single input to SPDS did not impact the margin of safety as defined in the basis for any Technical Specification.

SECTION IV

MISCELLANEOUS EVALUATIONS

Diesel Generator Loading Calculation

This revision to the SAR reflects Emergency Diesel Generator (EDG) Loading Calculation 85S-00002-01 which was revised to incorporate all load changes through Refueling Outage 2R11. The load increases did not result in the EDGs exceeding their 2-out-of-24 hour rating of 3135 kW.

Affected SAR Table: 8.3-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this calculation revision had no impact upon any accident initiators, the load additions documented in the calculation revision were within the ratings of the EDGs, and the load additions did not introduce any new modes of failure; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the load additions did not exceed the ratings of the EDGs and the additions remained bounded by existing accident analyses and single failure analyses; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specification bases did not define any margins of safety for EDG loading.

125 VDC Battery Load Charts and Duty Cycles

This calculation changed the load profiles and duty cycles on each of the red and green train batteries as a result of several physical plant modifications. These changes reflect the new load values and the time of operation of these loads that were added by approved design modifications.

Affected SAR Tables: 8.3-4A, 8.3-4B, 8.3-5, 8.3-6

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these changes did not effect the initiation or mitigation of any previously analyzed accidents and the battery sizing calculations verified that the batteries are able to perform their safety function; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this documentation of the changes to the battery load tables did not impact any equipment, systems, or structures and, therefore, could not create the possibility of a malfunction of equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases for these components.

Smoke Detector QS-7905

This correction provided the as-built location of duct type smoke detector, QS-7905, in the Computer Room branch of the Control Room/Computer Room Heating, Ventilation, and Air Conditioning (HVAC) System.

Affected SAR Figure: 9.4-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this detector was not evaluated as an initiator or mitigator in any accident analysis and does not affect the function of any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since no new failure modes were introduced that would affect the Control Room HVAC's ability to maintain habitability; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Control Room Emergency Chiller Valving

This drawing revision was performed concerning positioning of refrigeration valves to prevent fully backseating the valves to ensure refrigerant pressure is maintained on both sides. These valves have taps on both sides to allow pressure indication for proper chiller operation.

Affected SAR Figure: 3.2-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this enhancement did not change the position of the valves but was added to heighten the awareness of operators to properly position the valves to keep the chiller fully functional; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this enhancement did not affect the function or operation of the Control Room Emergency Air Conditioning System and did not create any circumstances not bounded by previous evaluations; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this enhancement did not alter the operation, function, or reliability of the Control Room Emergency Air Conditioning System.

Fire Plans

This revision to the SAR removed the requirement to maintain the site pre-fire plans in the security office. Removal of this requirement will have no effect on the ability of the fire brigade to extinguish or control a fire.

Affected SAR Section: 9.5.1.5.6.E

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since location of the site pre-fire plans does not affect any of the accident initiators or mitigators previously evaluated in the SAR and does not affect any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since removal of the pre-fire plans from the security office did not introduce any new accidents of a different type than those previously evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the pre-fire plans were not discussed in the Technical Specification bases.

Vibration and Loose Parts Monitoring

This Condition Report evaluated the partial inoperability of the Vibration Loose Parts Monitoring (VLPM) System. The VLPM System can function without the two lower vessel sensors in service, but is limited in its ability to determine the location of an anomaly.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since there were no previously evaluated accidents that would be affected by the failure or partial inoperability of the VLPM System; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since partial inoperability of the VLPM System remained bounded by previously evaluated accidents; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there was no Technical Specification bases which defined any margins of safety associated with VLPM System.

High Pressure Safety Injection/Low Pressure Safety Injection
Reactor Coolant Pressure Boundary Clarification

This revision to the SAR clarified the location of the Reactor Coolant Pressure Boundary for the High Pressure Safety Injection (HPSI) and the Low Pressure Safety Injection (LPSI) Systems. In addition, this change clarified the current pressure sensing locations on the LPSI line and identified periodic leak testing in accordance with the Technical Specification surveillance as the primary means of ensuring the integrity of the high pressure/low pressure interface.

Affected SAR Section: 5.5.12.3
Tables: 5.2-13, 5.2-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since these changes were made to add clarification and the affected systems will continue to function as originally designed and described in the SAR; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these changes did not affect the operation of any systems; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change was consistent with the applicable Technical Specification bases.

Continuous Radiation Monitoring Systems

These changes were made to remove verbiage from the SAR which did not conform to current Radiation Monitoring System commitments and Technical Specification surveillance requirements.

Affected SAR Section: 11.4.4.1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the affected equipment will be maintained in accordance with Technical Specification requirements and good maintenance practices and equipment important to safety to mitigate accidents was not impacted by this change; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not affect the functionality of any equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change brings the SAR into agreement with the Technical Specification requirements for calibration and functional testing of the monitors.

Operation of the Unit 2 Main Chiller as a Contaminated System

The Unit 2 Main Chiller was found to contain Sodium-24 and was subsequently evaluated in response to the requirements of I.E. Bulletin 80-10. This bulletin requires an immediate evaluation when a normally non-radioactive system becomes contaminated and cannot be decontaminated.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the Main Chiller was not credited as an initiator or mitigator of an evaluated accident, the existing contamination did not affect the function of this system, and this condition did not impact equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the consequences of releasing radioactivity contained in the Main Chiller to Lake Dardanelle was bounded by a previously evaluated accident and the activity in the chiller would not impact the function of equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the dose associated with the potential release of the entire contents of the Main Chiller was well below the limits of 10CFR20 and Technical Specifications.

Containment Isolation Valve Lineup

This condition report changed the Fire Water System valve lineup to the Containment Building to prevent various operability concerns for a single failure criteria during a Large Break Loss of Coolant Accident (LBLOCA). Closure of valve 2CV-3200-2 alleviated concerns of introducing fire water to the Containment Building during a post LOCA. The valve will be actuated to the open position when the reactor is in modes 5 or 6 to ensure that fire water is available to hose reel stations.

Affected SAR Figure: 9.5-1
Section: 9.5.5
Table: 6.2-26

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since closure of valve 2CV-3200-2 prevented the evaluated failure modes of Fire Protection System rupture or inadvertent operation in the Containment Building during normal operation, did not degrade the systems capability and reliability, and did not impact equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not introduce any new failure modes and did not degrade the capability of the Fire Protection System to perform its function; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there was no defined margin of safety with respect to this portion of the Fire Protection System.

Removal of Sink in the Hot Machine Shop

This condition report was written to document the removal of the Hot Machine Shop sink. This sink was non-safety related and provided only for convenience when cleaning parts and equipment prior to repairs.

Affected SAR Figure: 11.2-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the sink was not safety related and did not affect equipment involved in accident mitigation or initiation; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the removal of the sink did not impact any equipment or systems important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the existence of a sink in the Hot Machine Shop is not referenced in the bases for any Technical Specification.

Resin Sluice Header Drain Valve

This condition report retagged an existing drain valve on the resin sluice header to the waste concentrator bottoms flush connection and added the valve to the appropriate drawing. The valve was previously tagged as 2SZ-1009 which is also the tag number of a drain valve approximately five feet higher on the same header. This change did not affect the function of this system or any safety related system.

Affected SAR Figure: 11.5-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this valve does not perform a safety function, was not evaluated as an initiator or a mitigator of an analyzed accident, and does not interact with equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the addition of this valve to the drawing did not change the function, operation, or failure modes of any equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change did not impact any margin of safety defined in the Technical Specification bases.

Circulating Water Pump Discharge Valve Operating Logic

This drawing revision corrected a discrepancy between the "as built" logic, as shown on the Circulating Water Pump discharge valve electrical schematic, and that shown on the logic diagram. The corrected logic reflects a valve pause that occurs during an open valve operation at 1/6 open position when starting the first pump. This pause does not occur when starting the second pump.

Affected SAR Figure: 10.4-4

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this correction to the logic diagram did not change any wiring or schematic diagrams, did not change any system hardware, and affected only the non-safety related portion of the Circulating Water System; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change is bounded the accident scenario resulting from the loss of condenser vacuum, as evaluated in the SAR; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there is no margin of safety for the Circulating Water System defined in the Technical Specifications bases.

Emergency Cooling Pond Peak Temperature and Inventory Loss
Analysis

This change to the Licensing Basis Documents was made to reflect the analysis of Emergency Cooling Pond (ECP) response, consistent with Regulatory Guide 1.27, Revision 1. This analysis, utilizing a computer model benchmarked against an operating cooling pond to more accurately reflect pond behavior, yielded a much lower peak temperature of 120.8 F.

Affected SAR Figures: 9.2-14, 9.2-15, 9.2-16, 9.2-17, 9.2-18, 9.2-19, 9.2-20,
9.2-21
Sections: 1.2.2.10.6, 3.11, 9.2.1.1, 9.2.5.1, 9.2.5.3, 9.4.1.1.2,
9.6
Tables: 9.2-18, 9.2-19, 9.2-20

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the ECP serves only as a passive mitigator, is not considered an initiator of an analyzed accident, and the changes did not adversely impact equipment operation or introduce new failure modes of safety related equipment; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the changes relate to pond performance, and not the function of the pond, and did not create the possibility of a different type of accident or malfunction of equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change did not affect any margins of safety defined in the Technical Specification bases.

Emergency Cooling Pond Inventory

This change added detail to the discussion of the Emergency Cooling Pond (ECP) inventory analysis to clearly state the various demands and sources of pond water that are included. This change also ensured that the inventory analysis assumption of operator action was clearly shown.

Affected SAR Section: 9.2.5.3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the ECP was not evaluated as an accident initiator, these changes did not impact the ECP's ability to mitigate an accident, and no new failure modes for safety related equipment were introduced; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since changes to the inventory loss analysis did not create the possibility of a malfunction of equipment important to safety other than that previously evaluated; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since these changes specifically indicate the amount of water needed to maintain pond availability for the required 30 day post-accident time frame.

Steam Generator Subcompartment Pressure Analysis

This revision to the SAR incorporated the steam generator cavity subcompartment pressure analysis performed to determine the acceptability of having grating installed and permanently restrained on Elevation 426'6". The analysis utilized the COMPARE MOD-1 computer code which has provisions for the transient calculation of conditions in a system of volumes (i.e., subcompartments) connected by flowing vents with water blowdown into one or more of the volumes. Each volume was assumed to contain the stagnant homogeneous mixture of steam, air, and water that will typically exist within a subcompartment during the course of a High Energy Line Break (HELB) transient. The modeling of the containment subcompartments is consistent with the guidelines presented in NUREG-0800 (Reference 1), NUREG/CR-1199 (Reference 2), and ANSI/ANS-56.10-1982 (Reference 3). The modeling of the containment for this analysis includes both steam generator cavities and, as such, is considered more representative when compared against the single steam generator cavity model Bechtel used in the original analysis.

Affected SAR Figures: 6.2-16P, 6.2-3G, 6.2-3L, 6.2-3M, 6.2-3N
Sections: 6.2.1.1.5, 6.2.1.3.2.8, 6.2.1.3.2.9, 6.2.1.3.2.9.1,
6.2.1.3.2.9.2, 6.2.1.3.2.9.3, 6.2.1.3.5
Tables: 6.2-17A, 6.2-17A.IV

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this analysis did not provide any modifications that would interface with equipment credited with initiating or mitigating any of the previously analyzed accidents and the cavity walls were shown to be able to remain structurally sound during an HELB event; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this analysis only evaluated the as built conditions of the steam generator cavities and did not provide any modifications to equipment whose failure or misoperation would cause an accident; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no applicable margins of safety defined in the Technical Specification bases.

Specifications for Valves with Extended Top Works

This change clarified the mechanical requirements for procuring valves and the specifications that valves with extended top works must meet after installation. This change did not alter the capability of safety related valves to perform their safety function.

Affected SAR Section: 3.9.2.4

Table: 3.9-3

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change did not impact the ability of safety related valves to perform their safety function or affect the failure modes of the valves or valve components; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change was intended only to clarify existing statements and did not require changes in the field; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this change only clarified the difference between acceptable stress limits placed on valves with extended top works for procurement and for those valves already installed and did not alter any margins of safety as defined in the Technical Specification bases.

Containment Penetration Barriers Table

This change to the Containment Penetration Barriers Table was made to provide consistency with the intent of the table and to eliminate the potential for confusion. Stroke times for those valves that do not receive an automatic closure signal from either Containment Isolation Actuation Signal or Safety Injection Actuation Signal were removed and a clarifying note was added to define the column scope. The stroke times that were eliminated in this change are maintained in other design documentation.

Affected SAR Section: 14.1.3
Table: 6.2-26

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change did not affect any accident initiating or mitigating mechanisms, did not change plant equipment or operating conditions, and did not impact the function of equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not impact plant equipment, did not produce any new or different operating conditions, and did not change assumptions concerning equipment failure modes; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since specific valve stroke times were not mentioned in the Technical Specification bases.

Historical Pipe Stress Information

This change revises SAR sections, tables, and figures containing specific pipe stress analysis information such as actual data points used in the creation of the math model, listings of actual resultant pipe stresses, actual resultant usage factors, actual resultant stress intensity values, and actual resultant calculated jet thrust force loads to indicate that the information reported is historical information and that the qualifying Pipe Stress Report or pipe stress calculations should be referred to for the latest pipe stress information. All the original code requirements and NRC commitments on these piping systems with respect to postulated pipe break location determinations, actual stress and usage factor limits, dynamic analysis criteria/limits, and dynamic analysis criteria/limits including jet thrust force analysis have not been altered by these changes.

Affected SAR Figures: 3.6-24, 3.6-25, 3.6-26, 3.6-27, 3.6-33, 3.6-34, 3.6-39, 3.6-40, 3.6-41, 3.6-42, 3.6-44, 3.6-45, 3.6-46, 3.6-5, 3.6-50, 3.6-51, 3.6-52, 3.6-53, 3.6-54, 3.6-55, 3.6-56, 3.6-57, 3.6-58, 3.6-59, 3.6-6, 3.6-64, 3.6-7, 3.6-8, 3.6-9

Section: 3.6

Tables: 3.6-10, 3.6-11, 3.6-12, 3.6-13, 3.6-14, 3.6-15, 3.6-16, 3.6-17, 3.6-18, 3.6-19, 3.6-2, 3.6-20, 3.6-21, 3.6-22, 3.6-23, 3.6-24, 3.6-3, 3.6-4, 3.6-5, 3.6-6, 3.6-7, 3.6-8, 3.6-9

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change did not make any physical modifications to the plant and all original piping code requirements and NRC commitments on the piping systems with respect to postulated pipe break location determinations, actual stress and usage factor limits, and dynamic analysis criteria/limits, including jet thrust force analysis, were unaltered by these changes; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not make any physical modifications to the plant and all of the original piping code requirements and NRC commitments were maintained; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since no changes in the code allowable limits, or in any NRC committed limits, were made.

ANO-2 LDCR:

Fire Detection Instrument Surveillance Testing Requirements

This revision to the SAR changed the fire detection instrument surveillance testing requirements to be consistent with the 1993 edition of NFPA 72 and to remove statements not applicable to ANO's detection system. These changes revised the frequency of channel functional testing from once per six months to annually and added a requirement for a six month visual inspection.

Affected SAR Section: 9D.1.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since there were no accidents attributed to the functional testing of fire detection instruments and these changes in functional testing did not decrease the fire detection instrument's ability to rapidly detect, control, and extinguish fires which could potentially affect structures, systems, and components important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these changes to surveillance frequency did not introduce any new modes of failure and did not affect the form, fit, or function of the fire detection instruments; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the the Technical Specification bases for the fire detection instruments.

Containment Penetration Design

These changes to the containment penetration barriers provide consistency with the physical plant configuration, its operation, and the program for testing of penetrations based on Engineering Report 93-R-0007-01. These changes are descriptive in nature and do not represent any physical or operational changes beyond those already justified. The ability of the penetrations to perform their isolation functions was not affected by these changes.

Affected SAR Table: 6.2-26

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since designating or undesignating flanges as Reactor Building/Containment isolation barriers had no relationship to the initiation of accidents and providing a qualified flange as a backup to chronically leaking valves in a line with no active important to safety function can only decrease the probability of failure of the isolation function; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these changes have no potential effect on the physical barriers themselves other than a possible increase or decrease in testing for leakage; or
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety dealing with the specifics of which components are designated as Reactor Building/Containment isolation barriers in the Technical Specification bases.

Reorganization of Fire Protection

This revision incorporated a change to the Quality Assurance Manual Operations (QAMO) required as a result of the consolidation of the site and design fire protection groups. This change is administrative in nature and simply reassigns fire protection function responsibilities from the Manager, Standards to the Manager, Engineering Programs. This change did not delete or change any responsibilities within the QAMO or overall ANO Organizations.

This change affected QAMO Sections 1.3.1.1.6 and 2.0

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change was administrative in nature and did not affect any plant equipment; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these organizational changes to the QA Manual were not associated with any equipment important to safety and were administrative in nature; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the Technical Specifications bases did not specify a margin of safety with respect to the organization of the fire protection group.

Use of the Temporary Equipment Hatch for ANO-2

This change clarifies the discussion of the Temporary Equipment Hatch Cover (TEHC) by describing the TEHC as used during cold shutdown or refueling operational modes only. It also removes the discussion about a temporary escape hatch cover from the SAR due to Occupational Safety and Health Administration concerns.

Affected SAR Section: 3.8.1.1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the TEHC does not affect accident initiation, is restricted to use only during outages, was designed to meet refueling accident mitigation requirements, and fulfills the safety function requirements of the normal hatch cover; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the types of accidents that can occur during an outage remain the same regardless of the type of cover in use and administrative controls on sealing penetrations and opening the door maintain closure requirements; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the TEHC is designed to perform the identical function described in the Technical Specification bases and does not effect the margin to safety.

Boration System Commitment Change

This change revised a commitment to maintain two independent flow paths from each boric acid makeup tank whenever the tanks are required. The boration system is a backup to the control rods and does not need to be single failure proof within itself. Therefore, the requirement for two independent flow paths from each tank is excessive.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since having fewer boration paths available cannot affect the initiation or mitigation of any previously analyzed accident and this change did not impact any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since reducing the number of available boration paths did not impact any equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specifications bases that were affected by not having two independent flow paths from each tank.

Material Name Change

The material for the Unit 2 reactor coolant pump mechanical seal stationary face was revised by the supplier to a slightly different type of carbon/graphite material. A technical evaluation indicated that the flexural, tensile, and compressive strengths for the new material was equal to, or better than, the originally supplied material. Comparisons made on apparent density, hardness, elastic modulus, thermal conductivity, thermal expansion, corrosion resistance, wear resistance, and carbon blister resistance also showed no significant difference between the materials.

Affected SAR Table: 5.5-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since either material designation meets the requirement of the original material and the design function of the reactor coolant pump was unaffected by this change; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change was bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the material change resulted in no significant change in the critical characteristics of the seal stationary face.

Cycle 12 Reload Analysis Report

This Reload Analysis Report provided an evaluation of the design, accident analyses, and performance of ANO-2 during Cycle 12. The Cycle 12 design differs from that of the previous cycle. The standard Inconel spacer grid assembly on the Batches K, M, and N assemblies was replaced with a redesigned Inconel Spacer grid assembly, called the GUARDIAN grid, to improve the assembly's ability to filter and entrap debris. The fuel rod assembly was redesigned to increase the nominal active fuel length to 150.0 inches. The poison rod assembly was redesigned to increase the poison column length to 136.0 inches and uses 0.5 inch long burnable poison pellets. The Part Length CEAs were replaced with full length, full strength CEAs. In addition, the Statistical Combination of Uncertainties methodology was replaced with the Modified Statistical Combination of Uncertainties.

Affected SAR Figures: 15.1.1-1, 15.1.1-2, 15.1.1-3, 15.1.1-4, 15.1.2-1, 15.1.2-2, 15.1.2-3, 15.1.2-4, 4.1-1, 4.2-3, 4.2-4, 4.3-10, 4.3-1A, 4.3-1B, 4.3-1C, 4.3-1D, 4.3-1E, 4.3-1F, 4.3-1G, 4.3-2, 4.3-29, 4.3-29A, 4.3-3, 4.3-4, 4.3-5, 4.3-6, 4.3-7, 4.3-8, 4.3-9, 4.5-1, 4A.3-1, 4A.3-2, 4A.3-3, 4A.3-4, 4A.3-5, 4A.3-6, 4A.5-1, 4A.5-2, 4A.5-3, 4A.5-4, 4A.5-5, 4A.5-6, 4A.5-7, 4A.5-8, 4A.5-9

Sections: 15.1.1.1, 15.1.1.2.1, 15.1.1.2.2, 15.1.2.2.2.1, 15.1.2.2.2.2, 15.1.20.2.2.2, 15.1.5.2.3, 4.1, 4.2.1.1.5, 4.2.1.1.6, 4.2.1.2.1, 4.2.1.2.2, 4.2.1.2.3, 4.3.2.1, 4.3.2.2.3, 4.3.2.5.6, 4.4.2.2.2, 4.4.2.3.2, 4.5.1.1, 4.5.2.3, 4.5.3.2, 4.5.3.3, 4.5.3.4, 4.5.3.5, 4A.1, 4A.10, 4A.11, 4A.12, 4A.13, 4A.14, 4A.2, 4A.3, 4A.4, 4A.5, 4A.6, 4A.7, 4A.8, 4A.9, 9.3.4.4.1

Tables: 15.1.1-1, 15.1.1-2, 15.1.2-1, 15.1.2-3, 4.2-1, 4.3-1, 4.3-4, 4.3-5, 4.4-2, 4A.3-1, 4A.5-1, 4A.5-2, 4A.5-3, 4A.6-1, 4A.7-1

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change did not affect the initiators of previously analyzed accidents, did not affect radiological release rate/duration mechanisms or barriers, and did not negatively impact plant equipment or operations; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the Cycle 12 core design did not require any new equipment, alter the way in which the plant operates, or introduce any new modes of failure; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the thermal-hydraulics uncertainty factors are assumed as part of Core Operating Limits Supervisory System to ensure that the design margin to safety is maintained.

Temporary Service Air Compressor Connection

This SAR revision allows additional temporary compressors to be connected to the Service Air System during periods of high usage.

Affected SAR Figure: 9.3-1
Section: 9.3.1.2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the Service Air System is not a safety system and was not credited with initiating or mitigating any of the accidents previously analyzed in the SAR; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not affect the function or operating modes of the Service Air System and did not affect any equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the Technical Specification bases for the Service Air System.

LOCA Doses for Control Room Operators

This SAR change reflects the Control Room Operator doses generated using the latest version of the TRANSACT computer code which was revised to correct an error in the code equations. The immersion doses for Control Room operators were generated using the TRANSACT code and were affected by the revision to the code.

Affected SAR Table: 15.1.13-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the TRANSACT computer code calculates the consequences of a Maximum Hypothetical Accident (MHA) and the values generated have no interface with accident initiators, mitigators, or equipment important to safety. The consequences of the MHA were not increased since the slight increase in operator dose remained within the licensed limit; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since dose values do not affect or create accident initiators or impact equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the dose consequences associated with the MHA are not specified in the bases of any Technical Specification.

Diesel Fire Pump Day Tank Level Alarm

This revision to the SAR changed the diesel fire pump day tank level alarm setpoint to 85% (238 gallons). This change accounts for an eight hour capacity, as required by NFPA 20, two hours margin requested by operations personnel, and 1/2" for instrument error.

Affected SAR Section: 9D.2.2.B.1.A

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since a fire was not an accident analyzed in the SAR and this change did not affect any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change did not introduce any new modes for failure for equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the diesel fire pump was not addressed in the Technical Specification bases.

ANO-2 LDCR:

Primary Offsite Fire Fighting Assistance Organization

This change replaced the Russellville Fire Department with the London Fire Department as ANO's primary fire fighting assistance organization. All of the fire fighting capabilities required by ANO will be fulfilled by the London Fire Department to include equipment, training, and response. In addition, the London Fire Department will participate in the required drills with the ANO Fire Brigade.

Affected SAR Sections: 9.5.1.5.2.3, 9.5.1.5.2.5, 9.5.1.5.6, 9.5.1.5.7

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since offsite fire fighting assistance was not a consideration in any of the previously analyzed accidents and is not directly associated with any safety related equipment or systems; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this change does not support or provide direct services to any safety related equipment; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety defined in the basis for any Technical Specification that relates to offsite fire fighting assistance.

Cycle 12 Reload Analysis Report

This change to the SAR revised the starting point for the temperature reactivity coefficient test during low power physics testing and power ascension testing to allow the unit to start testing at 100% power instead of 95% power.

Affected SAR Sections: 4.5.2.3, 4.5.3.4, 4.5.3.5

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change did not affect any previously analyzed accident initiators, did not alter assumptions concerning the availability or failure modes of equipment, and did not alter the manner in which the unit is operated; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since these changes remained bounded by previously evaluated accident scenarios; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there were no margins of safety concerning the method for performing startup tests defined in the Technical Specification bases.

ANO-2 LDCR:

Storage of Other Low Level Radioactive Materials in the Low Level
Radioactive Waste Storage Building (LLRWSB)

This change added information to the SAR describing storage facilities to allow for the storage of low level radioactive material in the LLRWSB other than low level waste. Potential radiological impacts from this proposed change in usage are within the previously evaluated bounds for the LLRWSB.

This change affected ANO-1 SAR Section 11.1.3.3.8 as well as the ANO-2 SAR section listed below.

Affected SAR Section: 11.5.6

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since the LLRWSB has no connection with any of the situations or systems previously analyzed for either unit and does not interface with any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the LLRWSB is not located in the vicinity of, and does not interface with, equipment important to safety and, therefore, cannot create new failure modes; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since there are no margins of safety defined for this activity in the Technical Specification bases.

Revision of Reload Data Block Constants

This Technical Specification Amendment changed the Reload Data Block constants for the ANO-2 Core Protection Calculator System for Cycle 12 and beyond. The revised constants accommodate Full Length Group P Control Element Assemblies (CEAs) which replaced the Part-Length CEAs, accommodate Modified Statistical Combination of Uncertainties which replaced the standard Statistical Combination of Uncertainties in Cycle 12, reduce over-conservatism, and reflect recent analysis results.

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this analysis limit was not credited in any safety analysis event and no operational or physical changes were made to the plant; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this analysis did not impact any current failure modes or create any new ones; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since this TS change did not alter the Departure from Nucleate Boiling Ratio (DNBR) limit, but expanded the range in which the DNBR algorithm is valid.

Fuel Handling Accident Dose Analysis

This revision to the SAR reflects the revised fuel handling accident analysis which allows personnel airlocks to remain open during core alterations. The incremental changes in dose as a result of this revised analysis were insignificant and remain below the acceptance criteria of 75 Rem to the thyroid and 6 Rem to the whole body used by the NRC in the SER for Technical Specification Amendment 166.

Affected SAR Sections: 15.1.23, 15.2
Tables: 15.1.23-1, 15.1.23-2

It was determined that these changes did not:

- (i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since this change did not affect any accident initiators, accident assumptions and plant response in mitigating accidents were unaffected, and this change did not affect the operation of any equipment important to safety; or,
- (ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since the dose values associated with this change did not affect or create any possible accident initiators, reflect the consequences of a fuel handling accident, and did not affect the operation of any equipment important to safety; or,
- (iii) reduce the margin of safety as defined in the basis of any Technical Specification since the dose consequences associated with the fuel handling accident are not specified in the bases of any Technical Specification.