Florida
Power
CORPORATION
Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72

February 13, 1998
3F0298-20

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Subject: Annual 10 CFR 50.59 Report - Supplemental

Reference: FPC to NRC letter, dated January 28, 1998, 3F0198-41, "Final Safety Analysis Report, Revision 24"

Dear Sir:

Florida Power Corporation (FPC) is submitting the attached report to supplement the report provided in the referenced letter, as required by 10 CFR 50.59(b)(2).

Attachment A provides descriptions of changes to the facility as described in the Final Safety Analysis Report (FSAR) that were implemented pursuant to 10 CFR 50.59 between December 1, 1996, and November 30, 1997, and which were not included in the referenced letter. There were no tests or experiments conducted during this period. Summaries of the safety evaluations contained in Attachment A for the modifications or procedure changes resulted in no Unreviewed Safety Question (USQ).

There are no new commitments made in this letter. If you have any questions regarding this letter, please contact Ms. Sherry L. Bernhoft, Manager, Nuclear Licensing at (352) 563-4566.

Sincerely,

John J. Holden
Director, Site Nuclear Operations

JJH:cfw
Attachment

IE47

xc: Regional Administrator, Region II
Senior Resident Inspector
NRR Project Manager

ATTACHMENT A

SUMMARY OF SAFETY EVALUATIONS 10CFR50.59(b)(2)

This attachment contains a brief description of the changes, together with a summary of the supporting safety evaluations, implemented pursuant to 10 CFR 50.59 by FPC between December 1, 1996, and November 30, 1997, and which were not included in the report submitted along with the FSAR, Revision 24. These changes were evaluated using FPC procedures current at the time of the activity. Only those requiring a "full evaluation" or Unreviewed Safety Question Determination (USQD) are summarized.

These changes include fifteen changes to procedures, forty two modifications that did not affect the FSAR, seven calculations, five changes to programs, and two Improved Technical Specification Bases changes.

FPC significantly upgraded its 50.59 Program requirements and expectations beginning in late 1996. As a result, current safety evaluations (now referred to as USQDs) are more extensive and thorough. The process change also involved independent review of each USQD by the Safety Analysis Group (SAG). Previous upgrades of the process included expanding the USQ questions from three (3) to seven (7). The safety evaluation summaries which follow contain both types, depending upon when they were written.

Consistent with the requirements of 10 CFR 50.59(b)(2), the enclosed descriptions are summaries to convey the fundamental logic of the 50.59 safety evaluation. Should the NRC require additional details, the complete Safety Assessments (SA), along with the USQDs, are available at Crystal River Unit 3.

In addition, three changes were made following the guidance in Generic Letter 91-18, Revision 1, and which have been addressed in License Amendment Requests (LAR). These changes are not summarized in this report as the LARs fully describe the issue. The license amendments are:

LAR 218, Makeup System Letdown Line Failure Accident Analysis

LAR 222, Control Room Emergency Ventilation and Emergency Filters

LAR 224, Reactor Building Fan Starting Logic Modification

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: AI-504 "Guidelines For Mode 5 Outages And Reduced Reactor Coolant System (RCS) Inventory Operations"

Description

AI-504, "Guidelines for Mode 5 Outages and Reduced Reactor Coolant Systems (RCS) Inventory Operations", establishes criteria for operating the plant in a more conservative fashion than required by Improved Technical Specifications (ITS) by increasing the reliability of electrical supplies to CR-3 during shut down conditions. This change involves an enhancement that requires a full safety evaluation of any proposed deviation per CP-213; numerous clarifications; correction of typos; and a required reduction in the "margin of conservatism" by removing the 500KV backfeed as the primary source to the ES buses. The 500KV backfeed was reduced in status to being "conditionally available" as an emergency power source. This does not reduce the reliability of sources considered in the FSAR 8.2.3.3 which states, "The 500KV substation is not considered as an off-site power source for Unit 3 during normal operation. This source can be considered as an off-site power source for Unit 3 during normal operation. This source can be made available within 8 hours of plant shutdown in the event of a loss of both of the other off-site power sources." This procedure revision should be treated as a permanent change pending the engineering resolution of conditions placed on the use of the 500KV backfeed.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   This administrative change reflects the outcome of the NRC IPAP where it was found that use of the 500KV substation to backfeed during shut down operations, Modes 5 and 6, did not have calculations to certify its adequacy as a qualified source. The 500KV substation is not considered as an off-site power source during normal operation. This change prevents it from being used as a qualified, primary source to feed the ES Buses. The normal; feed is from the two 230KV transformers, MTTR-9 Offsite Power Transformer (OPT) and MTTR-6 Backup ES Transformer (BEST). Hence, the change does not change the probability of losing Decay Heat Removal capability or a Station Blackout Event. (The Station Blackout Event/LOOP has been analyzed as a Mode 1 event and is not completely applicable to Mode 5 and 6.) [This revision does not change or degrade any safety system in that the unqualified 500KV backfeed will only be used as an emergency power source under the conditions specified by Engineering.] In conclusion, since the normal source of off site power is the 230KV substation then the loss of the 500KV feed cannot cause any of the accidents that are initiated by a loss of offsite power. This revision does not change the probability.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The 500KV backfeed was not assumed in any accident analysis; therefore, loss of the 500KV backfeed cannot affect the consequences of any FSAR accident. The consequences, off-site and control room doses, remain unchanged by this procedure revision in that it: 1. Does not create any new credible failure modes or operating characteristics- The change ensures that the backfed power source whether primary or emergency can met the demands. This procedure and its proposed revision do not affect the "downstream" configuration of the ES Buses and does not propose Bus alignments that would invalidate the requirements of the ITS; and 2. Does not impact previously analyzed accidents or events for Mode 5 or 6 - The fuel handling accident would not be exacerbated by the changes to AI-540 in that electrical line ups to the FHCRs do not

contribute to the safety aspects of the equipment which are normally powered through non-safety related buses. Hence, effects on the cladding at a lower level and reduction in water level in the fuel handling areas by this change are not credible. Loss of Decay Heat Removal whether powered from the 230KV sources or the listed emergency sources has the same consequences. Removal of the 500KV source as the primary backfeed does not increase the chances of releasing more radioactivity due to more frequent loss of electrical power because the 230KV feeds are fully qualified. The consequences of Station Blackout/Loss of Off-site Power (LOOP) are not changed by this revision for the same reasons given for Loss of Decay Heat Removal. Hence, the consequences remain unchanged by this revision.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

No equipment related to safety is assumed in the FSAR accident analysis to be powered from the 500KV backfeed, the change to the 500KV backfeed cannot cause the malfunction of any equipment important to safety. This change does not degrade the performance of any safety system designed to function in the accident analysis. The fuel handling accident (FHA) depends upon the depth of the water and the Auxiliary and Reactor Building purge systems to maintain the radiation doses within the boundaries of the analysis. Change of the 500KV source to a conditionally available emergency source and using the fully qualified 230KV as the primary source does not change the probability of a decrease of water level nor purge operability. This change does not affect the safety systems assumed to function in the fuel handling accident such that the safety system performance is degraded below the design basis without compensating effects. As per above, no safety systems as called upon to mitigate the FHA. Furthermore, the change does not contain any interfaces with the cladding or the water that absorbs a fraction of the soluble radioactive gases. In any case the number of off-site power sources remains the same with one being conditionally available for emergency use. Hence, the chances for loss of Decay Heat Removal from a LOOP is unchanged. Therefore, the probability of malfunction of equipment important to safety is not changed.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

This change to AI-504 does not affect the radiological consequences should there be a failure of safety related equipment. The ES Buses do not experience any new, credible failure modes or operating characteristics due to changing the 500KV backfeed from being a primary source to being conditionally available as an emergency backfeed source. This change does not affect the impact/cause any new system failures or impact any previously evaluated system failures because: Voltage and load handling capability are adequate using the qualified 230KV sources as the primary sources. Hence, the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR are unaffected by this revision.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

This change does not affect the possibility of having a system upset such as a loss of Decay Heat or a radiation release caused by a fuel handling accident due to loss of power (LOOP). The accidents and events analyzed cover the possibilities since the loss of power from a qualified source, 230KV substation - the new primary source, and the unqualified source, 500KV - new conditionally available emergency source, yield the same results. Since the loss of offsite power is analyzed in the FSAR, the loss of off site power from either the primary source or backfeed cannot cause an accident of a different type than previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

This change does not create any different type of malfunction of equipment since: 1. There are no unanalyzed alignments of circuit breakers called out in the procedure for providing the backdfeed during Modes 5 and 6; 2. The procedure, AI-504, inclusive of this revision, does not require any temporary or permanent modifications; 3. The voltage and load carrying capability of the primary source (230KV substation) are qualified to meet all plant safety related functions such as decay heat removal and reactor coolant make-up; and 4. This procedure establishes administrative controls within ITS and FSAR allowed/analyzed boundaries. The 230KV source will be the primary source of power (2 redundant feeds). If this is lost (i.e. LOOP) the Emergency Diesel Generator(s) (EDG) will start and load the ES Bus(es). If the EDGs fail (i.e. SBO), then the 500KV source would be used. However, this source is not credited for a Station Blackout event (only the batteries are). Use of the 500KV source will not result in any new malfunctions. In all cases the malfunction of equipment will result from a loss of offsite power which is evaluated in the FSAR. This evaluation remains the same regardless of the source of offsite power. Therefore, use of the 230KV source instead of the 500KV backfeed cannot create the possibility of a malfunction of equipment type than previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

No margins of safety in Mode 5 are described in the FSAR. Since offsite power is not relied upon to protect the integrity of fission product barriers in any FSAR accident analysis (one diesel generator is required to be operable by ITS), changes to the backfeed used during Mode 5 cannot affect the parameters upon which margins of safety are based. Therefore, changing the 500KV backfeed from being the primary source to the back-up emergency source cannot reduce the margin of safety in the bases for any technical specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: AI-1803 "Heat Stress Management"

Description

Procedure AI-1803, "Safety Standards for Ladders, Scaffolds, and Ancillary Equipment"' is being revised to incorporate precautions for erection of scaffold around safety related/vital equipment and to add OSHA requirements. This procedure change is essentially a total re-write because of the significant number of changes/comments added to the procedure.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The erection of scaffold is required to perform maintenance and modification activities. Without scaffolding, personnel safety may be jeopardized by the methods required to gain access to SSCs. Maintenance activities, modifications, inspections, and testing is/are performed to place the plant in a safer, more reliable position. The erection of scaffold introduces a temporary structure in the plant that could have a direct or indirect affect on plant SSCs. These affects to SSC's may occur if the installation of scaffold is not seismically secured. Strengthened administrative controls including NOE's review and approval of scaffolding in the vicinity of safety related/ vital station equipment help assure that proper scaffolding design and usage will not adversely affect plant systems/operation.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The SAR address temporary structures that may affect plant Systems, Structures, and Components. The design base accidents do not consider the effect of scaffold in the Design Base Accidents. The affect on plant SSCs by scaffolds could place a SSC in a limited Operational Condition. This would be addressed in the technical specifications. The plant systems, structures and components are designed to preclude failures due to this type of an incident. Improperly erected scaffold may contribute to an accident as a secondary affect or cause an accident such as a small loss of coolant accident. Strengthened administrative controls including NOE's review and approval of scaffolding in the vicinity of safety related \ vital station equipment help assure that proper scaffolding design and usage will not adversely effect plant systems\operations. Accordingly, SSCs required for accident mitigation will not be affected and therefore the consequences of an accident will not be increased.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   Improper controls for the erection, removal, and use of scaffold could cause an increased probability or malfunction of equipment. Although scaffold does not directly change the operation of any system structure or component there are seismic consideration. The implementation of the requirements in AI-1803 for seismic erection of scaffold in the area of safety related or vital equipment decreases the probability due to erection of scaffold. The administrative controls and Engineering involvement in the erection of scaffold provides erected scaffold which will be seismically restrained and stiffened to reduce the risk of scaffolding interacting with SSCs. The distances from safety related or vital SSCs provides a calculated deflection due to a seismic event that would preclude adverse interaction with SSCs. The intended loading of scaffolding is also limited to reduce the possibility of scaffolding failure thus

reducing the possibility of affecting any SSC. Thus reducing the probability of an occurrence of a malfunction.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Access to safety related/vital plant equipment may be blocked by scaffolding preventing operator accessibility, which generically covers any system. Also, the potential impact of scaffolding on plant operations and system operability is considered prior to authorizing its erection in the vicinity of equipment important to safety. Erection of scaffold following the guidelines of AI-1803 in the vicinity of safety related/vital equipment does not change the operation of systems. Areas of SSCs which are required to mitigate an accident will not be affected by the introduction of scaffold erected by the criteria established in the procedure guide lines. Erecting scaffold to seismic standard approved by NOE and scaffold which allow access to plant equipment do not increase the consequences of a malfunction of equipment. The system design, functions, and operability remains the same as previously evaluated in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The changes to AI-1803 incorporated the seismic criteria for the erection of scaffold in the plant. The criteria set the minimum distance that scaffold could be placed next to safety related/vital equipment. It also established the location of restraints and supports on scaffold to make them more ridged and prevent the scaffold from coming in contact with plant SSCs. Load limits were placed on scaffold to prevent scaffold from becoming overloaded and preventing a possible collapse of the structure. Inspections are performed by Engineering on scaffolds in areas where scaffolds are erected that do not meet the seismic criteria established in AI-1803. Engineering directs and approves the modification of scaffold to provide scaffold that is seismically erected. Administrative controls are placed on the erection of scaffold in the plant depending on the location and the equipment scaffold is being erected around. Operations approves the erection of scaffold depending on the plant status and the possible effect on plant equipment required for the safe operation of the plant. Calculation S97-0249 provides the basis for the seismic criteria established for the erection of scaffold. These changes were placed in affect to reduce the possibility of scaffolding impacting the function of existing equipment or other safety related equipment installed in the plant. Thus the possibility of an accident of different type than previously evaluated in the SAR has not been created.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

Controls for the erection of scaffold depends on plant status which reduces the possibility of scaffolding affecting plant equipment required for the safe operation of the plant. Scaffold erected to the seismic criteria reduces the possibility of scaffold affecting any SSC during a seismic event. Maintaining access to plant equipment for Operations, provides the access to equipment in case of an accident or malfunction. The involvement of, the installer and Area Supervisor over the erection of scaffold, and Operations assessment provides the necessary checks to ensure that equipment is accessible. The Fire protection Specialist's/Engineer's approval of scaffold erected in the plant ensure that the Fire Protection Plan is not compromised or compensatory measures are in place meeting the requirements of the Fire Protection Plan. The erection of scaffold does not change the existing system design, component locations, components, or the safety system protective measures. The failure of a scaffold which could possible affect any SSC described in the SAR does not create a malfunction of a different type then previously described in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Properly installed scaffold meeting the seismic restraints provided in AI-1803 and following the administrative controls set in the procedure will maintain the existing systems design. The erection of properly installed scaffold in the plant will not effect the operation of existing plant system components or structures. Therefore these changes will not reduce any margin of safety as defined in the bases for the technical specifications.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: AP-250 "Radiation Monitor Actuation"

Description

This procedure change clarifies how the system is designed and should be operated in response to an AH System high radiation alarm in the affected atmospheric radiation monitors..

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The proposed activity more fully reflects the design of the affected systems and/or how they should be operated in response to a high radiation alarm. The affected components assist in the mitigation of an accident and are not accident initiators. They are not required for the mitigation of any accident. Therefore, the proposed activity does not increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The proposed activities will not increase the consequences of an accident previously evaluated in the SAR.

   The ITS bases change is a clarification which involves the AHF-20A, AHF-20B, AHF-44A, AHF-44B and AHF-30 fans. Status of AHF-44A, AHF-44B and AHF-30 is dependent on the status of AHF-20A and B prior to the initiation of RM-A5. As designed, if a CA exhaust fan (AHF-20A/B) was running in slow speed when RM-A5 actuates, then the fan would continue to operate and the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30) will continue to be available. As designed, if a CA exhaust fan (AHF-20A/B) was running in fast speed when RM-A5 actuates, then fan would trip along with the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30).

   In general, for the above inter-relationship, the ventilation flowpath is through AHF-30, from the Turbine Building, to the Chemistry Lab and Sampling Room hoods, through a charcoal filter, through AHF-44A/B, through AHF-20A/B and into the Auxiliary Building Exhaust. As discussed in section A of this USQD, this ventilation flowpath does not adversely impact the dampers that make up the control room habitability envelope. The dampers that isolate the control room from this flowpath are capable of repositioning when the AHF-20A/B is in slow speed, and AHF-44A/B and AHF-30 are inservice. Therefore, there is no adverse affect on the potential accident dose to the Control Room inhabitants. The effluent goes through the charcoal filter prior to AHF-44A/B and then discharges to the Auxiliary Building exhaust. Therefore, there is no adverse affect on the potential offsite accident dose.

   The ITS bases indicates that these fans are stopped in this event. The change is that if the AHF-20A/B fan is in slow speed, then all fans will continue to operate. This allows the sample hoods to continue to operate during this event and any accident that assumes that the RMS will actuate. The flowrate of the sample hoods are relatively small and the discharge flow is directed into the Auxiliary Building ventilation. The operation of these fans, whether stopped or inservice, does not affect any radiological release to the environment, and therefore, does not affect the radiological consequences of any accident. In addition, ITS bases B3.7.12 states that CREVS is not in the primary success path for any accident analysis.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The proposed activities will not increase the probability of occurrence of a malfunction of equipment important to safety.

The ITS bases change is a clarification which involves the AHF-20A, AHF-20B, AHF-44A, AHF-44B and AHF-30 fans. Status of AHF-44A, AHF-44B and AHF-30 is dependent on the status of AHF-20A and B prior to the initiation of RM-A5. As designed, if a CA exhaust fan (AHF-20A/B) was running in slow speed when RM-A5 actuates, then the fan would continue to operate and the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30) will continue to be available. As designed, if a CA exhaust fan (AHF-20A/B) was running in fast speed when RM-A5 actuates, then the fan would trip along with the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30). These fans only supply the ventilation to the sampling hoods. The operation of these fans, whether stopped or inservice, does not affect any equipment important to safety.

Therefore, based on the above discussions, the proposed activities will not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The failure modes of the AHF-20A/B, AHF-44A/B and AHF-30 are: (1) not to automatically stop; (2) for the AHF-20A/B to stop and the other fans continue to operate; (3) for the AHF-20A/B to operate and the other fans to stop. There are no manual operator actions associated with the restart of these fans in this procedure. If any of the fans fail to stop when AHF-20A/B are in fast speed, the operator would follow procedure and stop the affected fans. The above failure modes are not applicable when AHF-20A/B are in slow speed. The fans should continue to operate when they are in slow speed at the start of the event. If AHF-20A/B does trip in this case, then the procedure directs the operator to stop the other fans. If one of the other fans trip, then the affected sample hood will not have ventilation, which will stop the exhaust of the affected sample hood. These failures will not affect any equipment important to safety and will not change any radiological consequences.

The proposed activities do not adversely affect the concentration of radionuclides within the fluids affected by these activities. It does not create a larger path to the environment nor does it adversely affect the fuel integrity. Therefore, the consequences of a malfunction of equipment important to safety previously evaluated in the SAR has not increased.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The proposed activities will not create the possibility of an accident of a different type. The proposed activities more fully reflect the design of the affected systems and/or how they should be operated in response to a high radiation alarm. The affected components assist in the mitigation of an accident and are not accident initiators. They are not required for the mitigation of any accident. Therefore, the proposed activity does not create the possibility of an accident of a different type than any previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The proposed activity does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR. The proposed activity is to more fully reflect the design of the affected systems and/or how they should be operated in response to a high radiation alarm. A discussion to the possible failure modes of the affected SSCs are in section A of this USQD. Per that discussion, there are no new failure modes introduced in the proposed activity.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The proposed activities do not affect any margin of safety as defined in the bases for any Improved Technical Specifications. The following bases were reviewed for possible reduction in margin of safety: 3.3.15, 3.3.16, 3.4.14 and 3.7.12. The margin of safety as implied in these bases have not been affected by the proposed changes. ITS bases B3.7.12 requires a change to explain the inter-relationship between the AHF-20A/B fans with the AHF-44A/B and AHF-30 fans. This ventilation flowpath does not adversely impact the dampers that make up the control room habitability envelope. The dampers that isolate the control room from this flowpath are capable of repositioning when the AHF-20A/F fan is in slow speed, and AHF-44A/B and AHF-30 fans are inservice. Therefore, there is no adverse affect on the potential accident dose to the Control Room inhabitants. The effluent goes through the charcoal filter prior to AHF-44A/B fan and then discharges to the Auxiliary Building exhaust. Therefore, there is no adverse affect on the potential offsite accident dose. Therefore, this change has no affect on the margin of safety.

The proposed activities do not reduce the margin of safety assumed in the ITS. Nor do they conflict with any technical specification. Therefore, the proposed activities do not reduce the margin of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: AP-330 "Loss Of Nuclear Services Cooling"

Description

The intent of AP-330 is to provide direct action to bring the plant to a safe and stable condition in the event of a loss of SW cooling. AP-330 was rewritten to provide divergent distinct flow paths for three different initiating conditions; 1) SW inventory is low, where possibly there is a recoverable SW leak, 2) SW cooled components are indicating high temperatures and SW cooling capacity must be increased, and 3) complete loss of SW. If actions to recover from reduced inventory or high temperatures fail, it is expected that conditions will degrade to a total loss of SW scenario.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   Aligning DC cooling to MUP-1A instead of SW during this scenario cannot increase the probability of an accident since neither DC nor the MUPs are accident initiators. Likewise, voluntarily removing an SWP or RWP from service cannot increase the probability of an accident since SW/RW are not accident initiators. Loss of decay heat removal capability due to a loss of spent fuel cooling, although not an accident, will not occur since adequate pool level will be maintained at all times while the SW cooling to the SFHEs is isolated. Therefore, these changes cannot increase the probability of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Aligning DC cooling to MUP-1A instead of SW during this scenario cannot increase accident consequences since it ensures a MUP remains available during a loss of SW event. Normally, MUP-1A is aligned to SW for Appendix R concerns. However, no single failures need to be postulated for an Appendix R fire; therefore, a loss of SW will not occur coincident with a fire. At all other items, MUP-1A will remain aligned to SW and be available for use during an Appendix R fire. No other accidents are affected. Administratively securing an RWP or SWP will not increase accident consequences since this action will require entry into a 72 hour LCO. During this time, no additional single failures are postulated and the other train of SW/RW cooling remains available to cool equipment required for accident mitigation. Loss of decay heat removal capability due to a loss of spent fuel cooling, although not an accident, will not occur since adequate pool level will be maintained at all times while the SW cooling to the SFHEs is isolated. This will allow for natural circulation cooling of the fuel ensuring maximum fuel temperature limits are not exceeded and no fuel clad damage occurs. Maintaining minimum pool level ensures assumptions for iodine removal and radiation shielding remain bounding. Therefore, these changes cannot increase the consequences of any accident previously evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   Aligning DC cooling to MUP-1A instead of SW during this scenario cannot increase the probability of malfunction of the MUP or the SW or DC systems since MUP-1A can be cooled by either DC or SW per the current design. The DC system is fully capable of cooling MUP-1A under the loss of SW scenario. Administratively securing an RWP or SWP will not increase the probability of equipment failure since the redundant 100% capacity pump will be used to maintain

cooling to the required loads. The affected pump was rendered inoperable because it was determined that the discharge check valve of the idle pump was allowing excessive backflow. To combat this, the pump's discharge valve was closed and the pump was placed into pull-to-lock to ensure it does not auto-start with its discharge valve closed. If the operating pump were to fail, this idle pump could be made operable and placed in service in a timely manner to restore forced flow to the system. The intent of these steps is to ensure adequate SW cooling to the required loads is maintained at all times; therefore, probability of equipment failure due to a loss of SW is not increased by these actions. Isolating SW to the SFHEs will not increase the probability of equipment failure since maximum SF design temperatures will not be exceeded. Normal pool temperatures is maintained below 140°F to allow the purification loop to remain in service. The worst case heatup rate following a loss of forced SF cooling is calculated to be 5°F/hr. Therefore, approximately 4 hours can elapse before exceeding 160°F which is the structural design of the spent fuel pool. Actions to isolate and restore SW cooling to the SFHEs will be completed well within this time frame. Since all SF system components will be operated within their design parameters, the probability of failure cannot be increased. Therefore, these changes cannot increase the probability of a malfunction of equipment previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Aligning DC cooling to MUP-1A instead of SW during this scenario cannot increase consequences of equipment failure since it ensures a MUP remains available during a loss of SW event. Normally, MUP-1A is aligned to SW for Appendix R concerns. However, no single failures need to be postulated for an Appendix R firs; therefore, a loss of SW will not occur coincident with a fire. At all other times, MUP-1A will remain aligned to SW and be available for use during an Appendix R fire. During this event, MUP-1B is rendered inoperable due to the loss of SW and MUP-1C is not available since it would have been utilized prior to MUP-1A. MUP-1A is important for RCS inventory control since the loss of SW will most likely necessitate plant shutdown and cooldown. These actions maintain RCS inventory control during a loss of SW event and cannot increase the consequences of equipment failure in any way. Administratively securing an RWP or SWP will not increase the consequences of equipment failure since this action will require entry into a 72 hour LCO. During this time, no additional single failures are postulated and the other train of SW/RW cooling remains available to cool equipment required for accident mitigation. Loss of decay heat removal capability due to a loss of spent fuel cooling will not occur since adequate pool level will be maintained at all times while the SW cooling to the SFHEs is isolated. This will allow for natural circulation cooling of the fuel ensuring maximum fuel temperature limits are not exceeded and no fuel clad damage occurs. Cooling will be restored to the SFHEs prior to exceeding pooling temperature limits. Therefore, these changes cannot increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The changes to the procedure do not cause any new system interfaces or different system interactions that could create an accident of a different type. Therefore, the proposed activities do not create the possibility of an accident of a different type than any previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

No new failure modes are created by any of these changes. All equipment is operated within its normal design parameters and capabilities. No new equipment or system interfaces are created by these changes. Therefore, these changes cannot create the possibility of a different type malfunction of equipment important to safety than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Aligning MUP-1A to DC ensures that one MUP is available during a total loss of SW scenario. This is important for RCS inventory control. This pump would also be available for HPI if required. The restriction on SW cooling is only applicable for Appendix R fires which are not postulated coincident with this scenario. The margin of safety of maintaining adequate RCS inventory and the availability of HPI is not reduced. Administratively securing an RWP or SWP requires entry into a 72 hour LCO. ITS B3.7.7/3.7.9 states that with one of the emergency pumps inoperable, action must be taken to restore the pump to operable status within 72 hours. The 72 hour completion time for restoring operability is consistent with that for ECCS systems, whose safety functions are supported by the system. This completion time is based on engineering judgment and is consistent with accepted industry-accepted practice. Since these actions will be performed within the allowances of the ITS, the margin of safety cannot be reduced. The minimum spent fuel pool level limits will be maintained at all times thereby ensuring adequate decay heat removal. Maintaining minimum pool level also ensures assumptions for iodine removal and radiation shielding remain bounding. Therefore, these changes cannot reduce the margin of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: AP-430 "Loss Of Control Room Alarms"

Description

AP-430, Loss of Control Room Alarms, provides the operator with guidance when there is a sustained loss of any of the following: (1) the plant computer, (2) the annunciator CRT and (3) Main Control Room annunciator windows. The procedure generally verifies power is available to the equipment; takes compensatory actions for the equipment loss; performs proper post maintenance testing when maintenance activities are complete; and restores any equipment to its proper configuration. Steps 3.1 through 3.4 are applicable to either the loss of the plant computer or the annunciator system. Steps 3.5 through 3.22 are applicable for a loss of the annunicator system. Steps 3.23 through 3.27 are applicable of a loss of the plant computer.

AP-430 has been revised from revision 0 to revision 1. The procedure has been reformatted with editorial changes to conform to the current writer's guide. The cover page of the APs has been revised to have a slightly different footer, and has deleted the "Addresses Safety Related Components" reference. This is not needed since all APs go through the safety related review/approval process.

The procedure has been restructured for a more effective method of addressing the event. Actions common to the computer and annunciator failure have been moved up in the procedure to prevent repetition. Actions associated with loss of the annunciators have been placed before those for loss of computer as they are more significant. This has resulted in a significant renumbering and reordering of steps. The reordering of the steps has not adversely affected nuclear safety. As a result of the reordering of the steps, the initiating event is more effectively addressed, which does not adversely affect nuclear safety.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The proposed activity more fully reflects the design of the affected systems and /or how they should be operated in response to a CC emergency recirculation actuation. The affected components assist in the mitigation of an accident and are not accident initiators. They are not required for the mitigation of any accident. Therefore, the proposed activity does not increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   THE proposed activity will not increase the consequences of an accident previously evaluated in the SAR.

   THE ITS bases change is a clarification which involves the AHF-20A, AHF-20B, AHF-44A, AHF-44B, and AHF-30 fans. Status of AHF-44A, AHF-44B and AHF-30 is dependent on the status of AHF-20A and B prior to the initiation of CC emergency recirculation actuation. As designed, if a CA exhaust fan (AHF-20A/B) was running in slow speed when RM-A5 actuates, then the fan would continue to operate and the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30) will continue to be available. As designed, if s CA exhaust fan (AHF-20A/B) was running in fast speed when RM-A5 actuates, the fan would trip along with the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood the auxiliary supply fan (AHF-30).

In general, for the above inter-relationship, the ventilation flowpath is through AHF-30, from the Turbine Building, to the Chemistry Lab and Sampling Room hoods, through a charcoal filter, through AHF-44A/B, through AHF-20A/B and into the Auxiliary Building Exhaust. This ventilation flowpath does not adversely impact the dampers that make up the control room habitability envelope. The dampers that isolate the control room from this flowpath are capable of repositioning when the AHF20A/B is in slow speed, and AHF-44A/B and AHF-30 are Inservice. Therefore, there is no adverse affect on the potential accident dose to the control room inhabitants. the effluent goes through the charcoal filter prior to AHF-44A/B and then discharges to the Auxiliary Building exhaust. Therefore, there is no adverse affect on the potential offsite accident dose.

The ITS bases indicates that these fans are stopped in this event. The change is that if the AHF-20A/B fan is in slow speed, than all the fans will continue to operate. This allows the sample hoods to continue to operate during this event and any accident that assumes that the RMS will actuate. The flowrate of the sample hoods are relatively small and the discharge flow is directed in to the Auxiliary Building ventilation. the operation of these fans, whether stopped or Inservice, does not affect any radiological release to the environment, and therefore, does not affect the radiological consequences of Any accident. In addition, ITS bases B3.7.12 states that CREVS is not in the primary success path for any accident analysis.

Therefore, based on the above discussions, the consequences as a result of these changes will not increase from that previously evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The ITS bases change is a clarification which involves the AHF-20A, AHF-20B, AHF44A, AHF-44B and AHF-30 fans. Status of AHF-44A, AHF-44B and AHF-30 is dependent on the status of AHF-20A and B prior to the initiation of CC emergency recirculation actuation. As designed, if a CA exhaust fan (AHF-20A/B) was running in slow speed when RM-A5 actuates, then the fan would continue to operate and the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30) will continue to be available. As designed, if a CA exhaust fan (AHF-20A/B) was running in fast speed when RM-A5 actuates, then the fan would trip along with the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30). These fans only supply the ventilation to the sampling hoods. The operation of these fans, whether stopped or inservice, does not effect any equipment important to safety.

Therefore, based on the above discussions, the proposed activity will not increase the probably of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The failure modes of the AHF-20A/B, AHF-44A/B and AHF-30 are: (1) not to automatically stop; (2) for the AHF-20A/B to stop and the other fans to continue to operate; (3) for the AHF-20A/B to operate and the other fans to stop. There are no manual operator actions associated with the restart of these fans in this procedure. If any of the fans fail to stop when AHF-20A/B are in fast speed, the operator would follow procedure and stop the affected fans. The above failure modes are not applicable when AHF-20A/B are in slow speed. The fans should continue to operate when they are in slow speed at the start of the event. If AHF-20A/B does trip in this case, then the procedure directs the operator to stop the other fans. If one of the other fans trip, then the affected

sample hood will not have ventilation, which will stop the exhaust of the affected sample hood. These failures will not affect any equipment important to safety and will not change any radiological consequences.

The proposed activities do not adversely affect the concentration of radionuclides within the fluids affected by these activity. It does not create a larger release pat to the environment nor does it adversely affect the fuel integrity. Therefore, the consequences of a malfunction of equipment important to safety previously evaluated in the SAR has not increased.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The proposed activity will not create the possibility of an accident of a different type. The proposed activity more fully reflects the design of the affected systems and/or how they should be operated in response to a CC emergency recirculation actuation. The affected components assist in the mitigation of an accident and are not accident initiators. They are not required for the mitigation of any accident. Therefore, The proposed activity does not create the possibility of an accident of a different type than any previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The proposed activity does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR. The proposed activity is to more fully reflect the design of the affected system and/or how they should be operated in response to a high radiation alarm. There are no new failure modes introduced in the proposed activity.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The proposed activity does not affect any margin of safety as defined in the bases for any Improved Technical Specifications. The ITS bases were reviewed for possible reduction in margin of safety, and the results indicate that the margin of safety as implied have not been affected by the proposed changes. ITS bases B3.7.12 requires a change to explain the interrelationship between the AHF-20A/B fans with the AHF-44A/B and AHF-30 fans. This ventilation flowpath does not adversely impact the dampers that make up the control room habitability envelope. The dampers that isolate the control. room from this flowpath are capable of repositioning when the AHF-20A/B fan is in slow speed, and AHD-44A/B and AHF-30 fans are inservice. Therefore, there is no adverse affect on the potential accident dose to the Control Room inhabitants. The effluent goes through the charcoal filter prior to AHF-44A/B fan and then discharges to the Auxiliary Building exhaust. Therefore, there is no affect on the potential offsite accident dose. Therefore, this change has no affect on the margin of safety.

The proposed activities do not reduce the margin of safety assumed in the ITS. Nor do they conflict with any technical specification. Therefore, the proposed activities do not reduce the margin of safety as defined in the bases for any Improved Technical Specificatio

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: AP-513 "Toxic Gas"

Description

AP-513 addresses the actions necessary when a toxic gas release is in progress. AP-513 has been revised from revision 7 to revision 8. The procedure has been reformatted with editorial changes to conform to the current writer's guide. There are no major strategy changes in this revision of AP-513.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The proposed change is a clarification of the ITS bases which involves the AHF-20A, AHF-20B, AHF-44A, AHF-44B and AHF-30 fans. Status of AHF-44A, AHF-44B and AHF-30 is dependent on the status of AHF-20 A and B prior to the toxic gas actuation. The documents do not accurately reflect the design and operation of the inter-relationship of the CA exhaust fans (AHF-20A/B) with the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30).

   The second part of the change to the ITS bases deletes the reference to the mechanical equipment room exhaust fan. This fan does not exist in the CC HVAC system. There are mechanical equipment room exhaust fans (AHF-64/65) in the Technical Support Air Handling System and do not receive a signal to stop on a toxic gas actuation.

   The proposed activities more fully reflect the design of the affected systems and/or how they should be operated in response to a toxic gas actuation. The affected components assist in the mitigation of the accident and are not accident initiators. They are not required for the mitigation of any accident. Therefore, the proposed activity does not increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The proposed activities will not increase the consequences of an accident previously evaluated in the SAR.

   The proposed change is a clarification of the ITS bases which involves the AHF-20A, AHF-20B, AHF-44A, AHF-44B and AHF-30 fans. Status of AHF-44A, AHF-44B and AHF-30 is dependent on the status of AHF-20A and B prior to the toxic gas actuation. The documents do not accurately reflect the design and operation of the inter-relationship of the CA exhaust fans (AHF-20A/B) with the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30).

   In general, for the above inter-relationship, the ventilation flowpath is through AHF-30, from the Turbine Building, to the Chemistry Lab and Sampling Room hoods, through AHF-44A/B, through AHF-20A/B and into the Auxiliary Building Exhaust. As discussed in Section A of this USQD, this ventilation flowpath does not adversely impact the dampers that make up the control room habitability envelope. The dampers that isolate the control room from this flowpath are capable of repositioning when the AHF-20A/B is in slow speed and AHF-44A/B and AHF-30 are inservice. Therefore, there is no adverse affect on the potential accident dose to the Control Room

inhabitants. The effluent goes through the AHF-44A/B fans and then discharges to the Auxiliary Building exhaust. Therefore, there is no adverse affect on the potential offsite accident dose.

The ITS bases indicates that these fans are stopped in this event. The change is that if the AHF-20A/B fan is in slow speed, then all the fans will continue to operate. This allows the sample hoods to continue to operate during this event and any accident that assumes that the toxic gas monitors will actuate. The flowrate of the sample hoods are relatively small and the discharge flow is directed into the Auxiliary Building ventilation. The operation of these fans, whether stopped or inservice, does not affect any radiological release to the environment, and therefore, does not affect the radiological consequences of any accident. In addition, ITS bases B3.7.12 states that CREVS is not in the primary success path for any accident analysis.

The second part of the change is that the mechanical equipment room exhaust fan does not exist in the CC HVAC system. There are mechanical equipment room exhaust fans (AHF-64/65) in the Technical Support Air Handling System and do not receive signal to stop on a toxic gas actuation.

Therefore, based on the above discussions, the consequences as a result of these changes will not increase from that previously evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The proposed change is a clarification of the ITS bases which involves the AHF-20A, AHF-20B, AHF-44A, AHF-44B and AHF-30 fans. Status of AHF-44A, AHF-44B and AHF-30 is dependent on the status of AHF-20 A and B prior to the toxic gas actuation. The documents do not accurately reflect the design and operation of the inter-relationship of the CA exhaust fans (AHF-20A/B) with the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30). These fans only supply the ventilation to the sampling hoods. The operation of these fans, whether stopped or inservice, does not affect any equipment important to safety.

The second part of the change is that the mechanical equipment room exhaust fan does not exist in the CC HVAC system. There are mechanical equipment room exhaust fans (AHF-64/65) in the Technical Support Air Handling System and do not receive a signal to stop on a toxic gas actuation.

Therefore, based on the above discussions the proposed activities will not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The proposed change is a clarification of the ITS bases which involves the AHF-20A, AHF-20B, AHF-44A, AHF-44B and AHF-30 fans. Status of AHF-44A, AHF-44B and AHF-30 is dependent on the status of AHF-20 A and B prior to the toxic gas actuation. The documents do not accurately reflect the design and operation of the inter-relationship of the CA exhaust fans (AHF-20A/B) with the CA fume hood exhaust fan (AHF-44A/B) and CA fume hood auxiliary supply fan (AHF-30).

The failure modes of the AHF-20A/B, AHF-44A/B and AHF-30 are: (1) not to automatically stop; (2) for the AHF-20A/B to stop and the other fans continue to operate; (3) for the AHF-20A/B to operate and the other fans to stop. There are no manual operator actions associated with the restart of these fans in this procedure. If any of the fans fail to stop when AHF-20A/B are in

fast speed, the operator would follow procedure and stop the affected fans. The above failure modes are not applicable when AHF-20A/B are in slow speed. The fans should continue to operate when they are in slow speed at the start of the event. If AHF-20A/B does trips in this case, then the procedure directs the operator to stop the other fans. If one of the other fans trip, then the affected sample hood will not have ventilation, which will stop the exhaust of the affected sample hood. These failures will not affect any equipment important to safety and will not change any radiological consequences.

The second part of the change to the ITS bases deletes the reference to the mechanical equipment room exhaust fan. This fan does not exist in the CC HVAC system. There are mechanical equipment room exhaust fans (AHF-64/65) in the Technical Support Air Handling System and they do not receive a signal to stop on a toxic gas actuation.

The proposed activities do not adversely affect the concentration of radionuclides within the fluids affected by these activity. It does not create a larger release path to the environment nor does it adversely affect the fuel integrity. Therefore, the consequences of a malfunction of equipment important to safety previously evaluated in the SAR has not increased.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The proposed activities will not create the possibility of an accident of a different type. The proposed activities more fully reflect the design of the affect systems and/or how they should be operated in response to a toxic gas actuation. The affected components assist in the mitigation of an accident and are not accident initiators. They are not required for the mitigation of any accident. Therefore, the proposed activity does not create the possibility of an accident of a different type than any previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The proposed activity does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR. The proposed activity is to more fully reflect the design of the affected systems and/or how they should be operated in response to a toxic gas actuation. A discussion of the possible failure modes of the affected SSCs are in section A of USQD. Per that discussion, there are no new failure modes introduced in the proposed activity.

Therefore, the proposed activity does create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The proposed activities do not affect any margin of safety as defined in the bases for any Improved Technical Specifications. ITS bases 3.7.12 was reviewed for possible reduction in margin of safety. The margin of safety as implied in these bases have not been affected by the proposed changes. ITS bases B3.7.12 requires changes as described in USQD section A. The required changes do not adversely impact the dampers that make up the control room habitability envelope. Therefore, there is no adverse affect on the potential accident dose to the Control Room inhabitants. In the change where the CA exhaust, fume hood exhaust, and fume hood auxiliary supply fans continue to operate, the effluent goes through the AHF-44A/B fans and then

discharges to the Auxiliary Building exhaust. Therefore, there is no adverse affect on the potential offsite accident dose. Therefore, this change has no affect on the margin of safety.

The other change to the ITS 3.7.12 is to delete the reference to the mechanical equipment room fan. As discussed above, this fan is not part of the CC HVAC system and does not receive a signal to stop/start on a toxic gas actuation. Therefore, this change does not affect the margin of safety.

The proposed activities do not reduce the margin of safety assumed in the ITS. Nor do they conflict with any technical specification. Therefore, the proposed activities do not reduce the margin of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: AP-1080 "Refueling Canal Level Decrease"

Description

This procedure provides the guidance for responding to an unexpected decrease in Refueling Canal and/or spent Fuel Pool level. The actions of the procedure stop the leak, stabilize the systems and restore the Refueling Canal and/or Spent Fuel Pool level to the normal operating range. Most of the proposed changes involve aligning the steps in a more logical flow which will allow the operating crew to assess the problem and initiate the proper corrective action in a more timely manner.

The following significant change has been incorporated:
Caution prior to step 3.26 (old CAUTION prior to step 3.18) alerts the operating crew that the SF pool temperature may reach 190°F in as little as 6 hours, assuming a level of at least 156.0' with the SF cooling system secured and that up to 70 gpm makeup flow may be required to maintain SF pool level due to boiloff. The time value has been changed from 8 hours to 6 hours to align with the Current Design Basis value. The calculations are based on a full core offload 150 hours following Reactor shutdown.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The Spent Fuel Cooling system is designed to remove the decay heat of the spent fuel assemblies stored in the Spent Fuel Pool. The only accident which involves the Spent Fuel Pool is described in FSAR Section 14.2.2.3.3, FHA Outside the Reactor Building, and the Spent Fuel Cooling system is not addressed or considered in the discussion. However, the 23 feet of required water level is essential for shielding during normal as well as accident conditions. The Spent Fuel Cooling system indirectly maintains the required spent fuel level of 23 feet by preventing boiloff due to overheating of the spent fuel pool. Therefore, the prevention of boiloff in the spent fuel pool does mitigate the consequences of a spent fuel pool fuel handling accident by ensuring a spent fuel pool level of 23 feet is maintained, and hence this activity does not increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The SF cooling system is used to keep the Spent Fuel Pool adequately cooled to prevent damage of the Spent Fuel assemblies due to overheating. The system design is to remove the decay heat of the Spent Fuel assemblies by circulating the water in the Spent Fuel Pool through cooling loops and rejecting the heat to the SW system. FSAR Section 14.2.2.3.3, Fuel Handling Accident (FHA) Outside Containment, addresses the consequences of a dropped fuel assembly in the Spent Fuel Pool. The only Spent Fuel Pool water requirement to mitigate the accident is a level of at least 23 feet above the top of the fuel assemblies. Providing adequate cooling of the water in the Spent Fuel Poll will prevent boiloff due to overheating to ensure the 23 feet above the assemblies is maintained. Providing the proper time at which pool boiling may being with no SF cooling in service will help maintain the proper water level in the pool which will ensure the consequences of the accident remain within the analyzed values; therefore, the proposed change does not increase the consequences of an accident evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The proposed change provides direction which will ensure the Spent Fuel Pool is not overheated. Maintaining the spent fuel pool temperature within its designed temperature range will protect the pool integrity. Protecting the pool will ensure that the fuel assemblies remain covered and cooled. Alerting the operating crew of the time allowed to pass with no cooling prior to the onset of boiling will ensure that actions to restore cooling occur in a timely manner. This information is provided to protect the Spent Fuel Pool from boiling which will ensure pool integrity is maintained; therefore, the proposed change does not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Failure mode of the Spent Fuel Pool is a breach which causes a decrease in water level. The proposed change alerts the operating crew of the heatup rate for the Spent Fuel Pool following a loss of all cooling which will protect the integrity of the spent fuel pool to ensure continued cooling of the spent fuel assemblies. Protecting the Spent Fuel Pool will ensure the proper water level is maintained above the spent fuel assemblies. Maintaining the proper water level above the assemblies as assumed in the accident analysis ensures a fission product barrier, which mitigates the consequences of an accident, is in place; therefore, the proposed change will not increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The Spent Fuel Cooling system is designed to remove the decay heat of the spent fuel assemblies stored in the Spent Fuel Pool which will ensure pool integrity is maintained; therefore, providing the time it takes for the Spent Fuel Pool to start boiling following a loss of cooling will not cause the SF cooling system to become an initiator of an accident of a different type than any previously evaluated in the SAR

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

Providing the operating crew with the proper time frame in which the Spent Fuel Pool may begin to boil following a loss of cooling will allow the required actions to be taken to return a cooling loop to service. This CAUTION is provided to protect the Spent Fuel Pool by maintaining the temperature of the pool in its analyzed range; therefore, it does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Providing the guidance as to when spent fuel pool boiling may occur following the loss of cooling will ensure actions are taken to restore a source of cooling in a timely manner. Maintaining the pool at the proper temperature will prevent boiloff which will aid in maintaining the proper height of water above the fuel assemblies for accident mitigation as well as protecting the integrity of the pool. By protecting these components the margin of safety as defined in the bases for the ITS will be preserved with no reduction.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Calculation E92-0174 (SBO Analysis Heat Load Margin for DAC #8 Control Room)

Description

This calculation revision increases the assumed number of people in the Control Room from 3 to 6 during a Station Blackout (SBO) event. Six occupants within the Control is the normal occupancy prior to an SBO event. The additional heat load due to the additional 3 occupants does not adversely affect the temperature or temperature limit of the Control Room during an SBO event. As a result, this is not change to the facility.

This change is being made to correct an incorrect assumption used during the initial development of the calculation at operations request and does not affect the FSAR.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   This calculation revision increases the assumed number of people in the Control Room from 3 to 6 during a Station Blackout (SBO) event. Changing the occupancy of the Control Room from 3 to 6 slightly decreases the existing heat load margin for the Control Room established within the calculation. This is a result of the additional 200 Btu/hr heat load per person added to the Control Room during an SBO event by the 3 additional occupants. The additional heat load slightly increases heat load for the Control Room and slightly decreases the heat load margin associated with the maximum temperature or temperature limit for the Control Room. The heat load, heat load margin and Control Room temperature/temperature limit do not affect the probability of accidents as stated within the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Since the maximum temperature and heat load for the Control Room are not adversely affected by this calculation revision, the consequences of an accident as previously evaluated in the FSAR are not affected by this calculation revision. An SBO event does not assume a simultaneous, MHA, LOCA, toxic gas, etc., accident. As a result, no affect on the accidents described within the FSAR occurs as a result of this calculation revision.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The change in occupancy within the Control Room slightly increases the heat load and slight decreases the heat load margin associated with the maximum allowable temperature (temperature limit) of 120 degrees F during an SBO event. Adequate margin is maintained to assure the Control Room temperature does not exceed the 120 degrees F limit. This along with the required operator actions contained within established procedures, assures equipment required for mitigating an SBO event are not exposed to excessively high temperatures and remain operational. Assuring the Control Room temperature during an SBO event remains below the maximum allowable temperature assures that an accident of a different type than previously evaluated within the FSAR is not created.

   Simultaneous radiological or toxic gas accidents are not assumed during an SBO event.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Assuring the maximum temperature limit is not exceeded during an SBO event assures that equipment required to mitigate the SBO via operator action is available during the SBO event. The increased occupancy within the Control Room associated with this calculation revision does not affect the maximum temperature limit for the Control Room. As a result, the probability of a malfunction of equipment is not affected by this calculation.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

This calculation only slightly increases the heat load and only slightly decreases the heat load margin associated with the maximum temperature within the Control Room to assure that equipment required to mitigate an SBO event is available to perform its intended function. The maximum temperature limit or maximum heat load limit is not affected by the heat load associated with the additional 3 occupants in the Control Room. Since the Control Room maximum temperature and heat load limits are not adversely affected (i.e., exceeded) by this calculation revision, the consequences of a malfunction of equipment as evaluated within the FSAR are not affected.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

Assuring the temperature limit and heat load limit for the Control Room during an SBO is not adversely affected assures that the possibility of a malfunction of equipment of a different type is not created. This calculation revision only slightly affects the Control Room heat load and the heat load margin contained within the calculation. The Control Room maximum temperature or heat load limit is not adversely affected by this calculation revision. As a result, the possibility of a malfunction of equipment is not created by this calculation revision.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The Control Room heat load, heat load limit and temperature limit are not a part of the Technical Specifications. Assuring that the temperature limit within the Control Room is not exceeded during an SBO event, along with the required operator actions established within procedures, assures that equipment required for the mitigation of an SBO remains functional during the SBO event. As a result, the margin of safety as defined within any Technical Specification Bases is not reduced by this calculation revision.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Calculation E-96-0004 (500 kV As Offsite Power)

Description

This calculation finalizes the analyses for using the 500 kV switchyard as an offsite power source as required by Problem Report 96-0242. The analyses are applicable for plant shutdown MODEs 5, 6 and no MODE. The calculation evaluates the 500 kV Backfeed for acceptable loading limits and the ability to start and accelerate large motors, without actuating SLUR Relaying. It also evaluated acceptable short circuit levels and evaluates voltage and phase angle differences between the 500 kV and the 230 kV busses to keep circulating currents at ES busses, bus ducts and cables connecting the ES busses within acceptable limits when transferring the 230 kV Substation to the 500 kV Substation.

The results of the calculation conclude that voltage, phase angle and load management constraints and limitations are required to be placed on this source of power by administrative controls. Without these constraints, SLUR relaying could inadvertently actuate and a loss of power to associated electrical ES busses and connected equipment could result. These restrictions may require increased operator attention for monitoring switchyard voltages and loading.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The probability of a Station Blackout Event is not increased by this activity because present design of the 500 kV Backfeed allows this source of power to be utilized when the plant is shutdown (MODEs 5 and 6) with no limitations, constraints or restrictions. This change imposes voltage, phase angle and loading constraints on this power source which will decrease the probability of SLUR action. Also, the TS requirements during shutdown ensure the plant has the capability to mitigate the consequences of postulated accidents. However, the assumption of single failure and concurrent loss of all offsite or all onsite power is not required to demonstrate this capability. Therefore, the probability of an SBO in MODEs 5 or 6 is not increased by this change.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The proposed 500 kV Backfeed voltage, phase angle and loading constraints will decrease the probability of SLUR actuation and SBO. Therefore, the minimum capabilities of this offsite power source to maintain rated frequency and voltage, and accept required loads to mitigate an accident, while connected to the ES Busses is enhanced by this proposed change such that the consequences of an SBO, Loss of DHR or Fuel Handling Accident remain unchanged.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The proposed 500 kV Backfeed voltage, phase angle and loading constraints decrease the probability of SLUR actuation. Thus, the minimum capabilities of this offsite power source to maintain rated frequency and voltage, and accept required loads to mitigate an accident, while connected to the ES Busses is enhanced by this proposed change. Therefore, the probability of a malfunction of equipment associated with this proposed change is not increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

This calculation proposes that voltage, phase angle and loading constraints be placed on the 500 kV Backfeed by administrative controls. Without these constraints, SLUR relaying could inadvertently actuate. This would be an improvement over current design. Therefore, the minimum capabilities of this offsite power source to maintain rated frequency and voltage, and accept required loads to mitigate an accident, while connected to the ES Busses would be enhanced by this proposed change such that the consequences would not be increased.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

This calculation performed design analyses on the existing 500 kV Backfeed and further limits its operation with voltage and loading constraints to prevent inadvertent SLUR actuation. This will be an improvement over current operational practices and SLUR actuations have been previously evaluated. Therefore, the possibility of a different type failure mode than any previously evaluated is not introduced.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

This calculation analyzes the 500 kV Backfeed for use as an offsite power source in MODEs 5 and 6 and further limits its operation with voltage and loading constraints to prevent inadvertent SLUR actuation. This will be an improvement over current operational practices. Also, the equipment to be supplied by this power source has its own protective features that have been previously analyzed. Furthermore, the use of this power source will not be unlike that of the other analyzed power sources OPT and BEST. Therefore, the possibility of a different type malfunction than any previously evaluated is not introduced. Thus, the probability of occurrence of a malfunction of equipment important to safety is not increased.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The ITS bases applicable to this change are B3.8.1, B3.8.2 and B3.8.10.

The 500 kV Backfeed will be used when the plant is shutdown primarily for certain testing and maintenance activities. The Technical Specification requirements during shutdown ensure the plant has the capability to mitigate the consequences of postulated accidents. However, the assumption of a single failure and concurrent loss of all offsite or all onsite power is not required to demonstrate this capability because many DBAs are only analyzed assuming MODE 1 conditions and have no specific analyses in other MODEs. Therefore, the MODE 1 events are bounding or not credible in MODEs 5 and 6 because the energy contained within the reactor coolant pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the required systems' LCOs. Thus, the operability of one required offsite power source (in this case the 500 kV Backfeed) and EDG ensures the availability of sufficient AC sources to operate the plant in a safe manner and to mitigate the consequences of postulated events during shutdown.

However, B3.8.2 LOC states that the 500 kV Backfeed is one of three "qualified" offsite circuits during plant shutdown MODEs 5 and 6 and defines "qualified" as being capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the Engineered Safeguards (ES) bus(es).

This change places voltage, phase angle and loading constraints on the 500 kV Backfeed to prevent inadvertent SLUR actuations. Therefore, this proposed change is an improvement over current design and will further ensure that the "qualified" capabilities are maintained.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Calculation I-90-0018 (Uncertainty With Indicators, Alarms and Setpoints)

Description

This calculation determines the uncertainty associated with the level indicators, alarms, and fill set/reset setpoints. The sepoints values are not described discussed in the ITS or FSAR. The setpoint changes do not change the operational function for the EC system discussed in the FSAR; do not change the design basis accidents; and do not increase any credible failure modes.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   This change is limited to determining instrument uncertainties and performing setpoint changes on the DC surge tank level loop. The DC system provides a heat sink for decay heat removal for both normal shutdown and post-accident conditions and cannot initiate any accidents; therefore, the probability of an accident is not increased.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Accident consequences will not be increased if the EC system continues to perform its design function of providing two independent trains of cooling to the safety related loads as required. The new FILL RESET and HIGH ALARM setpoints ensure that sufficient water inventory is maintained in the DC surge tanks and provides room for thermal expansion of the water. The existing FILL and LOW alarm setpoints ensure that sufficient water inventory is maintained in the DC surge tanks to provide the required NPSH for the pumps and to provide water inventory for thermal contraction. The purpose of the Analysis/Calculation and usage of the instruments does not increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   No instrumentation is being added or changed-out by the calculation. The LOW ALARM and FILL setpoints are not being changed and their setpoint is above the minimum NPSH. The FILL RESET setpoint is being lowered to stop filling early prior to the HIGH ALARM alerting the operator of a potential overfill. There is 1 switch assembly per DC tank and the probability of its malfunction is not greater either before or after the setpoint change. The results of the switch assembly malfunction remains the same either before or after the setpoint change, i.e., insufficient NPSH or tank overfill. The FILL RESET (11'-0") and HIGH ALARM (11'-7") setpoints provide sufficient margin below the tank overfill point (14') such that the probability of overfilling the tank is not increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The consequences of a single assembly malfunction remain the same. i.e., insufficient pump NPSH or tank overfill. The switch malfunction will either empty the tank or overfill the tank, be in constant alarm or not alarm which may or may not defeat one DC train. The loss of one DC train is within the design basis since the system is equipped with two fully redundant, separate trains each capable of removing the normal and post-accident heat loads.

Even though the HIGH ALARM (11'-7") has been moved 3" closer to the overfill point (14"), there remains adequate margin for the operator to react and isolate the fill should the FILL RESET switch fail. Therefore, the consequences of the switch failure with respect to operator response time are not increased.

The setpoint change does not affect the ability of the nitrogen system to provide an adequate nitrogen blanket to prevent oxygen entrainment and provide a margin of operation between normal operations and relief pressure. The new 3" lower FILL RESET setpoint and 3" higher HIGH ALARM setpoint will not affect the ability of the surge tank bleeder valves (DCV-190, DCV-191) to provide an adequate margin to operate the system without lifting the relief valve. These valves remove nitrogen from the surge tank during normal operation to allow thermal expansion.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

Neither Instrumentation nor equipment is being added or replaced by the calculation. No new system interfaces are being added by the calculation. The DC system is a closed cycle system and does not cause any accidents described in the FSAR. The purpose of the Analysis/Calculation, setpoint change, and usage of the instruments does not create the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

Neither Instrumentation nor equipment is being added or replaced by the calculation. No new interfaces are being added by the calculation. The purpose of the Analysis/Calculation, setpoint change, and usage of the instruments does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR since the switch function has not changed and the range of the indicator remains the same. Failure of the switch will not result in any malfunctions not previously analyzed.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The FILL RESET and HIGH ALARM are normal functions of the level switches for automatic OPEN/CLOSE operation of the valves DCV-10 and DCV-12 to maintain water level in the tank. Adjustment of the switches is a normal maintenance activity. The LOW ALARM, HIGH ALARM, FILL SET, and FILL RESET setpoints are not defined in the ITS; and therefore, the design bases and margin to safety is not affected. The FILL RESET and HIGH ALARM setpoint changes do not change the operational function for the DC system discussed in ITS. Calculation M-89-0032 defined adequate pump NPSH at an indicated value of 6'-7-5". The minimum tank level as set by the LOW ALARM and FILL setpoint is 8'-6" which was not changed by this calculation. The maximum tank level as set by the FILL RESET setpoint is 11'-0" with a HIGH ALARM setpoint at 11'-7". These setpoints are sufficient for thermal expansion or contraction of the complete DC fluid system.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: I-93-0002 (EFIC High Range SG Level Loop)

Description

Calculation I-93-0002, Revision 3 evaluates the impact on the Emergency Feedwater Initiation and Control (EFIC) high range steam generator level loop accuracy's as a result of Peere 1437. The existing in-plant steam generator high range level transmitters SP-017-LT through SP-024-LT are being replaced with Rosemount differential pressure transmitters that have better performance specifications. This calculation revision examines the impact on the use of the replacement transmitters against the current instrument loop uncertainty. The results of the calculation identify that the new model transmitter has enhanced performance characteristics that improve the loop uncertainties especially when exposed to a high temperature steam environment. Conclusions are reached that permit the steam generator control level settings for Natural Circulation, ECCS and Overfill to be adjusted to better define their operating bands. The calculation's mathematical determination technique takes advantage of the Graded Approach Methodology to reduce the conservatism to achieve reasonable error values.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The design calculation addresses a specific portion of the EFIC automatic level control function for proposed increases to Natural Circulation or ECCS (Inadequate Subcooling Margin) setpoints. EFIC initiation and control operates in response to loss of normal feedwater events and does not initiate any FSAR accidents. Therefore, this change to the EFIC system cannot increase the probability of occurrence of accidents evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The design calculation activity cannot affect EFW initiation and supply during any accident evaluated in the FSAR. The design calculation determines the desired level setpoints for the high range level instrumentation while adequately taking into account instrument uncertainty to the design basis requirements for accident mitigation. EFIC uses the selected level setpoints for controlling EFW flow to prevent excessive OTSG fill rates and RCS overcooling. The design calculation does not affect the EFIC initiation, isolation or flow control functions. The SG level rate control function is not changed. The initiation, isolation, and control functions are contained within separate modules. There is no interaction between initiation, isolation, or flow control functions assumed in the FAR accident analysis. Hence, this modification does not alter EFIC EFW initiation control, and isolation functions and does not create any additional system interfaces that could affect other mitigating equipment. Because this calculation cannot affect the operation or performance of any equipment assumed for accident mitigation in the FSAR accident analysis, it cannot increase the consequences of any accident evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The design calculation does not alter the ability of the EFIC and EFW systems to initiate and provide required EFW flows following an accident. The setpoint changes only affect the high range level control and does not alter the initiation or isolation functions of EFIC. Following the setpoint adjustment, the failure modes of the EFIC also remain the same as those previously defined. Since the potential EFIC malfunctions with the setpoint changes are the same as for the

existing design, EFW operation and performance cannot be affected, and EFW will be supplied to the steam generators as assumed in the accident analyses. The design calculation does not create new interfaces with other fluid system. Because the calculation change does not affect EFW system operation or performance and because it does not interface with other fluid systems, it cannot increase the consequences of any malfunction of equipment important to safety previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The design calculation set-point adjustments are limited to the signals for level control and do not affect the initiation or isolation functions of EFIC. The only malfunctions previously evaluated in the FSAR that could potentially be affected by these adjustments are those which impact EFW level control. EFW flow control function is not changed. The initiation, isolation, and control functions are contained within separate modules. There is no interaction between initiation, isolation, or flow control functions assumed in the FSAR accident analysis. Therefore, the design calculation changes cannot increase the probability of a malfunction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

With the design change activities, the EFIC system will continue to have the same interfaces with other plant systems. These include the (1) the main steam system (through the ADVs), (2) the 1E vital bus power which powers the EFIC cabinets, (3) the EFW system, and (4) the main steam and main feedwater isolation through the FOGG Logic. The Atmospheric Dump Valve (ADV) control circuitry is physically separated from the EFW flow control circuitry and cannot be affected by this change. Electrical faults that could require power supply protection have been considered in the EFIC cabinet design and the planned change cannot further affect the power supply. The change to the EFIC level control function cannot initiate any accident because the EFIC level control function interfaces only with the EFW system and the EFW system is isolated from the steam generators by check valves until required for accident mitigation. The FOGG logic initiation and isolation functions are contained within separate modules from the EFW flow control circuitry and cannot be affected by this change. Because the planned change to the EFIC level control function cannot affect the main Steam System, the EFIC power supply, EFW initiation or FOGG Logic, and cannot affect the steam generator feedwater supply until actuated for accident mitigation, it cannot initiate any accident. Therefore, this change to the EFIC system cannot create an accident of a different type than previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The failure modes for the design calculation control points are the same as those prior to the change. The calculation control points do no create any new system interfaces or failure modes that could introduce malfunctions of equipment of a different type. Because the calculation does not introduce different interfaces or failure modes, it cannot create the possibility of a malfunction of equipment important to safety of a different type than previously evaluated.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Specific margins of safety are not quantified in the basis for the Improved Technical Specifications (ITS) applicable to the emergency feedwater system. However, certain acceptance limits are quantified in the ITS and FSAR for key parameters to ensure EFW post-DBA heat removal functions are satisfied. The EFIC system level and control functions will not be changed by the design calculation. In addition the EFIC functions in response to plant transients will not be affected by the calculation. The required EFW flow assumed in the FSAR accident analyses will be unaffected by the design calculation activity, therefore, there is no affect on existing acceptance limits or reduction in the margin of safety associated with the EFW system as defined in the basis for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Calculation I-97-0005 (Instrument Error PORV)

Description

This calculation determines the instrument error associated with determining the PORV LTOP setpoint and establishes the low-pressure "open" setpoint of the pilot operated relief valve (PORV), from 550psig to 442.6psig and the "close" setpoint from 500psig to 392.6psig. The current PORV setpoint of 550psig was based on a less conservative analytical methodology than that required by 10CFR50 Appendix G. The proposed LTOP Technical Specification amendment to continue using this alternative methodology for 15 EFPY was denied by the NRC in a letter dated August 31, 1995. This change is being implemented to support current plant conditions (Mode 5) and the Justification for Continued Operation (JCO) dated April 7, 1997, provided in response to NRC letter dated February 4, 1997, by FPC. The intent of LTOP, or Low Temperature Overpressure Protection, is to protect the reactor vessel from exceeding brittle fracture limits at low temperatures. These limits are determined by using the methods described in ASME Code Section XI, Appendix G. The subject change only provides protection for plant conditions with no RC Pumps operating. With RC Pumps operating, the differential pressure between the instrument tap and the beltline is greater and the limits are lower. Prior to plant startup, a revised (LTOP) ITS submittal will be made to the NRC, which will justify LTOP limits for all applicable plant conditions. This ITS submittal will also apply ASME Code Case N-514, which allows for some reduction in conservatism. The PORV setpoint may be changed again based on the analysis supporting this submittal.

This change will cause the PORV to open before RCS system pressure exceeds the allowable limits as determined by the requirements of 10CFR50 Appendix G, and ASME Code Section XI, Appendix G. This new setpoint is based on FTI calculation 32-1259000-01, "Pre-Startup LTOP Limits for CR-3," and is adjusted for uncertainty in accordance with FPC calculation I-97-0005, Rev. 0. The FTI calculation is based on analysis that supported the October 31, 1989, Technical Specification Submittal of the CR-3 Pressure-Temperature Curves for 15 effective full power years (EFPY). These curves were approved by the NRC in a letter dated February 7, 1991. The PORV "close" setpoint is based on a nominal 50psig below the "open" setpoint consistent with the current implementation.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The change reduces the low pressure setpoint of the PORV to more conservatively protect the reactor pressure vessel from brittle fracture at low temperatures during plant shutdown. The failure of the PORV to close following actuation of its high pressure setpoint is considered a small break LOCA within the scope of analyzed break sizes described in FSAR Section 14.2.2.5. A similar PORV failure at its low pressure setpoint would also fall well within this spectrum of analyzed piping breaks as the energy and mass blowdown rates are much smaller for the pressure and temperature conditions present during plant shutdown. Reduction of the LTOP setpoint does not introduce any new system interfaces or adversely affect any existing ones. In addition, normal pressure-temperature operating limits are determined such that the LTOP setpoints are not challenged. The only credible scenario which could challenge LTOP, based on existing administrative controls and regulatory input, is a stuck full-open makeup valve, and the probability of this event occurring is not affected by the lowering of the PORV setpoint. Since the probability of PORV actuation or PORV malfunction has not changed, the effects to any analyzed accidents does not change.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

The low pressure actuation of the PORV is not credited in any mitigation strategy for any analyzed design basis accident described in the FSAR. The change conservatively reduces the low pressure setpoint of the PORV to better protect the reactor pressure vessel from brittle fracture at low temperatures during plant shutdown. Therefore, the LTOP setpoint change cannot in any way affect the radiological consequences of any analyzed accident described in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Two potential malfunctions are associated with the PORV: (1) failure to open within setpoint band resulting in possible damage to the reactor vessel, and (2) failure to close following PORV actuation resulting in a small break LOCA. The setpoint change only affects the PORV low pressure actuation setpoint. It neither increases nor decreases the probability of these two possible malfunctions. It does not change any circuitry design or operational parameters that could possibly affect the design function of the PORV other than the specific setpoints at which it actuates (opens) and resets (closes). The lower pressure setpoint actually provides additional conservatism for protection to the reactor vessel. In addition, plant operating procedures assure plant conditions are maintained within established operating limits such that LTOP setpoints are not challenged. Therefore, the LTOP setpoint change cannot increase the probability of malfunction of any equipment important to safety.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Low pressure PORV operation is not credited in any mitigation strategy for any analyzed design basis accident described in the FSAR. The change reduces the low pressure setpoint of the PORV to more conservatively protect the reactor pressure vessel from brittle fracture at low temperatures during plant shutdown. It does not introduce any new system interfaces or adversely affect any existing ones. Therefore, the LTOP setpoint change cannot in any way affect the radiological consequences of malfunction of any equipment important to safety.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

Reduction of the LTOP setpoint does not introduce any new system interfaces or adversely affect any existing ones. The proposed activity does not increase the probability of either PORV actuation or PORV malfunction or otherwise contribute to the initiation of an accident. In addition, plant operating procedures provide assurance that plant conditions are maintained within established operating curves such that LTOP setpoints are not challenged.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The change does not introduce any new failure modes associated with PORV operation nor adversely affect any malfunctions previously evaluated. Therefore, the LTOP setpoint change cannot create the possibility of a different type of malfunction of equipment important to safety than previously evaluated.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The LTOP limits are not in the current ITS. The setpoint change is being made to support the JCO response to the NRC, by letter dated April 7, 1997. The new setpoint is based on limits which satisfy the regulatory requirements for LTOP protection as stated in 10CFR50 Appendix G, providing no RC pumps are operating. This LTOP limit is consistent with the analysis for the approved 15 EFPY P-T curves. In addition, administrative controls limiting RCS pressure to < 100psig have been implemented to further reduce the chances of challenging the LTOP limits until a formal ITS change is submitted. A Technical Specification change will be made prior to startup, which will define the applicable LTOP limits for all plant conditions at CR-3.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Calculation I-97-0015 (Instrument Error RC-147-PT and RC-148-PT)

Description

This calculation, I-97-0015, determines the instrument error associated with the instrument strings RC-147-PT and RC-148-PT that were upgraded by MAR 96-07-17-01. RC-147-PT provides the input to the Automatic Closure and Interlock System (ACIS) control of DHV-3. RC-148-PT now provides the input to the PORV Bistable for LTOP protection which was originally on string RC-131-PT. This calculation will supersede I-97-0005. New values for allowable As-Found and As-Left tolerances are derived from this calculation, however, the existing setpoint of 442.6 psig for the PORV will not change and there will be no setpoint change required in the plant. Also, the determination of the Tech Spec limit is regenerated in this calculation and is consistent with the original derived setpoint value of 457 psig. Previous calculation I-97-0005 had a 50.59 evaluation performed which determined there was no USQ. This SA/USQD for I-97-0015 incorporates and supersedes the SA/USQD for I-97-0005.

The ACIS low pressure "open" setpoint prevents overpressurization of the Decay Heat system when RCS pressure exceeds 284 psig. DHV-3 is a normally closed valve with power removed. Power is removed during normal plant operations to prevent spurious opening in the event of a fire (Appendix R concern). This action prevents inadvertent DH system overpressurization. The Automatic Closure and Interlock System (ACIS) function protects the low pressure piping in the DHR System from overpressurization in the event the DHR drop line is open, or attempted to be opened, with RCS pressure in excess of the design pressure of the suction side of the DHR system pumps. The interlock portion will prevent opening and the isolation portion of the circuitry will automatically close isolation valves in the DH drop line (DHV-3 and DHV-4) when RCS pressure is above the nominal 284 psig setpoint. Excessive pressures in the DH system potentially could result in a loss of coolant accident outside the containment. The interlock setpoint is based on preventing pressure in excess of design from being exerted on the DH/LPI system from the RCS. The calculation determines a setpoint that is lower than the existing ACIS setpoint for DHV-3 and therefore, a setpoint change will be required for RC-3A-PS8. The setpoint will be lowered from 272 psig to 269 psig. This will ensure that the process setpoint of 284 psig is maintained to that ACIS continues to perform as designed to prevent overpressurization of the Decay Heat system when RCS pressure exceeds 284 psig. Again, this change is necessitated by the upgrade of the instrument strings by MAR 96-07-17-01. The instrument strings for the ACIS control of DHV-4 were not affected by the MAR; therefore, no change to the DHV-4 bistable setpoints is required.

The instrument uncertainties are applied in the conservative direction, and were developed per the requirements of the "I&C Design Criteria for Instrument Loop Uncertainty Calculations", revision 2, and NEP-213, "Design Analysis/Calculations". These documents provide guidance for instrument loop uncertainty development as discussed in ISA-RP 67.04, Part II, Approved September 1994, "Methodologies For The Determination of Setpoints For Nuclear Safety-Related Instrumentation", as well as ISA-S 67.04, Part I, Approved September 1994, "Setpoints For Nuclear Safety-Related Instrumentation" and Regulatory Guide 1.105, Revision 2, "Instrument Setpoints for Safety-Related Systems."

No other changes to the plant are being made by this calculation. There are no new credible failures being introduced since the operating characteristics and function of the PORV is not being altered. Existing failure modes or probabilities of the PORV to reclose or open are not affected by this change. A failure of the PORV to reclose following actuation has the same characteristics as a small break LOCA and is bounded by the FSAR Chapter 14 analysis.

The change also reduces the low pressure setpoint for the ACIS control of DHV-3 to more conservatively protect the Decay Heat System from overpressurization during startup or cooldown. There are no new credible failures being introduced since the operating characteristics and function of DHV-3 is not being altered. Existing failure modes or probabilities of DHV-3 to close or open are not affected by this change.

DHV-3 is a normally closed and locked valve. The only credible failure which could challenge the overpressurization of the Decay Heat system due to this change is if DHV-3 is stuck open. This event is mitigated by the ACIS system design since the ACIS system consists of two subsystems each physically and electrically separated from the other and redundant. DHV-4 provides the redundant overpressurization protection in addition to the relief valves installed and will preclude the possible overpressurization scenario due a stuck open valve. When decay heat is established and during shutdown, operating pressures are below 220 psig (OP-202, OP-209) and therefore, lowering this setpoint by 6 psig (from 272 to 266 psig) will not cause any nuisance or inadvertent trips.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The change reduces the low pressure setpoint of the PORV to more conservatively protect the reactor pressure vessel from brittle fracture at low temperatures during plant shutdown. The failure of the PORV to close following actuation of its high pressure setpoint is considered a small break LOCA within the scope of analyzed break sizes described in FSAR Section 14.2.2.5. A similar PORV failure at its low pressure setpoint would also fall well within this spectrum of analyzed piping breaks as the energy and mass blowdown rates are much smaller for the pressure and temperature conditions present during plant shutdown. Reduction of the LTOP setpoint does not introduce any new system interfaces or adversely affect any existing ones. In addition, normal pressure-temperature operating limits are determined such that the LTOP setpoints are not challenged. The only credible scenario which could challenge LTOP, based on existing administrative controls and regulatory input, is a stuck full-open makeup valve, and the probability of this event occurring is not affected by the lowering of the PORV setpoint. Since the probability of PORV actuation or PORV malfunction has not changed, the effects to any analyzed accidents does not change.

   Failure of ACIS which opened DHV-3 and DHV-4 could lead to overpressurization of the Decay Heat system and potentially result in a LOCA outside the containment. Lowering the bistable setpoint for DHV-3 ensures that the process setpoint of 284 psig is maintained so that ACIS continues to perform as designed to prevent overpressurization of the Decay Heat system when RCS pressure exceeds 284 psig. Failure of ACIS which closed DHV-3 during decay heat system operation could lead to a loss of decay heat removal. Lowering the bistable setpoint 6 psig (from 272 psig to 266 psig) will not impact normal operation of the DH system and will not result in inadvertent or unwanted closures of DHV-3 because the normal operating pressure when shutdown on decay heat is below 220 psig well below the setpoint value not causing any nuisance trips. Therefore, the probability of an accident is not increased.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The low pressure actuation of the PORV or the ACIS control of DHV-3 is not credited in any mitigation strategy for any analyzed design basis accident described in the FSAR. The change conservatively reduces the low pressure setpoint of both valves to better protect the reactor pressure vessel from brittle fracture at low temperatures during plant shutdown and to prevent overpressurizing the decay heat system when shutdown. The new setpoint will not affect the ability to bypass ACIS control to open the valves to establish the decay heat dropline. Therefore, the setpoint changes cannot in any way affect the radiological consequences of any analyzed accident described in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Two potential malfunctions are associated with each valve: (1) failure to open within setpoint band resulting in possible damage to the reactor vessel (PORV) or inability to establish the decay heat drop line (DHV-3), and (2) failure to close following PORV or ACIS actuation resulting in a LOCA. The setpoint changes only affects the low pressure actuation setpoint. It neither increases nor decreases the probability of these two possible malfunctions. It does not change any circuitry design or operational parameters that could possibly affect the design function other than the specific setpoints at which it actuates and resets. The lower pressure setpoint actually provides additional conservatism for protection. In addition, plant operating procedures assure plant conditions are maintained within established operating limits such that setpoints are not challenged. Therefore, the setpoint changes cannot increase the probability of malfunction of any equipment important to safety.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Low pressure PORV operation and ACIS actuation of DHV-3 are not credited in any mitigation strategy for any analyzed design basis accident described in the FSAR. The change reduces the setpoints to more conservatively protect the reactor pressure vessel from brittle fracture at low temperatures during plant shutdown and to prevent overpressurizing the decay heat system during startup. It does not introduce any new system interfaces or adversely affect any existing ones. Therefore, the setpoint changes cannot in any way affect the radiological consequences of malfunction of any equipment important to safety.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

Reduction of the LTOP setpoint and ACIS setpoint of DHV-3 does not introduce any new system interfaces or adversely affect any existing ones. The proposed activity does not increase the probability of either valve's actuation or malfunction or otherwise contribute to the initiation of an accident. In addition, plant operating procedures provide assurance that plant conditions are maintained within established operating curves such that setpoints are not challenged.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The change does not introduce any new failure modes associated with PORV or DHV-3 operation nor adversely affects any malfunctions previously evaluated. Therefore, these setpoint changes cannot create the possibility of a different type of malfunction of equipment important to safety than previously evaluated.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The LTOP limits are not in the current ITS. Technical Specification Change Request Notice (TSCRN) 213 is submitted to add the Tech Spec Limit of 457 PSIG for LTOP. The new setpoint is based on limits which satisfy the regulatory requirements for LTOP protection as stated in 10CFR50 Appendix G and ASME Code Case N-514. The ACIS Limit of 284 PSIG is not affected by this calculation and the trip setpoint is lowered in a more conservative direction.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Calculation M97-0027 (Capacity Of FST-2A and 2B)

Description

Calculation M97-0027 changes the minimum required fuel capacity maintained in the Diesel Fire Service Pump Fuel Storage Tanks FST-2A and FST-2B from 175 gallons to 132 Gallons.

This calculation and the associated document revisions are required to support the set point for the Low Level Alarm on Diesel Fuel Storage Tanks FST-02A & B as detected by level switches FS-13-LS and FS-14-LS and to reduce the frequency of refill required. No other modifications or changes are to be done as a result of this reduction of the minimum required fuel level in tanks FST-02A & B. Diesel Fire Service Pumps FSP-2A and FSP-2B along with their associated Fuel Storage Tanks are non safety related and non seismic. NOD-31 does classify the Diesel Fire Pumps as "**Important to Safety**".

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The Fire Service Fuel Oil System and the Fire Service Water Supply System are passive protection systems that do not interface directly with any safety system and do not operate, monitor, or control any system which performs a safety function. The Design Basis Accidents analyzed in Chapter 14 of the FSAR and any other licensing basis events are not affected by a fire or a malfunction of the fire suppression system.

   As per FSAR section 9.8.8 the capability of the plant to achieve safe shutdown in the event of fire is analyzed in the Fire Hazards Analysis, the Safety Evaluation Reports, dated July 27, 1979, January 22, 1981, January 6, 1983, July 18, 1985, and March 16, 1988; and the 10CFR50, Appendix R Fire Study.

   The Appendix R Fire Study documents the analysis of the Crystal River Unit 3 nuclear plant to the criteria of 10CFR50, Appendix R, sections G, J, L and O. The contents of this report include the fire studies performed, required valve operations, associated circuits and spurious operations, safe shutdown circuits/components, fire areas and shutdown scenarios with supporting exhibits, and compliance of plant modifications affecting Appendix R.

   The change of the low level alarm set point for the Diesel Fire Pump Fuel Storage Tanks or the surveillance acceptance criteria from 175 gallons to 132 gallons has no detrimental effect on the fire system or its ability to function when required to respond to any of the postulated fires described in the Fire Hazard Analysis.

   As this change has no affect on the Fire System's ability to respond to any of the postulated fires and further the affects of a fire do not change the results of any accident as described in Chapter 14 of the FSAR, this change in the minimum levels in FST-2A and FST-2B cannot increase the probability of occurrence of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The Fire Service Water Supply System is a passive protection system that does not interface directly with any safety system and does not operate, monitor, or control any system which performs a safety function. The systems, structures, or components, required to mitigate the

consequences of an Design Basis Accident analyzed in Chapter 14 of the FSAR are not affected by a fire or a malfunction of the fire suppression system.

As per FSAR section 9.8.8 the capability of the plant to achieve safe shutdown in the event of fire is analyzed in the Fire Hazards Analysis, the Safety Evaluation Reports, dated July 27, 1979, January 22, 1981, January 6, 1983, July 18, 1985, and March 16, 1988; and the 10CFR50, Appendix R Fire Study.

This change has no affect on the Fire Systems ability to respond to any of the postulated fires and there are no FSAR accident analyses which assume a fire concurrent with an accident. Furthermore, the Fire Service Water Supply System plays no role in protecting the fission product barriers. Therefore, this change cannot increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The Fire Service System and its associated equipment are considered "important to safety". Changing the low level alarm setpoint for the Diesel Fire Service Pump Fuel Storage Tanks or the surveillance acceptance criteria from 175 gallons to 132 gallons has no detrimental affect on the fire system or its ability to function when required to respond to any of the postulated fires described in the Fire Hazard Analysis. The change in the minimum fuel level in the Diesel Fire Service Pump Fuel Storage Tanks does not have an affect on any other plant system other than the Fire Service Water Supply System. There is no change in the fuel quality or its testing.

Neither the change to the alarm setpoint nor the reduction in the minimum fuel requirements create any new system/component interfaces or credible failure modes or adversely affect any previously existing ones. Therefore, the change in the minimum fuel level cannot increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The Fire Service Water Supply system is a passive protection system that does not interface directly with any system important to safety and does not operate, monitor, or control any system which performs a safety function. The systems, structures, or components, important to safety required to mitigate the consequences of an accident analyzed in Chapter 14 of the FSAR are not affected by fire or malfunction of the fire suppression system.

This change has no affect on the Fire Systems ability to respond to any of the postulated fires and there are no FSAR accident analyses which assume a fire concurrent with an accident. Furthermore, the Fire Service Water Supply System plays no role in protecting the fission product barriers. Therefore, this change cannot increase the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

Lowering of the alarm setpoint could potentially result in a lower fuel inventory that is currently assured with the higher alarm setpoint. However, the design continues to meet the minimum fuel supply requirements for an eight hour run imposed by NFPA-20. No credit has been taken for

supply capability in excess of those requirements. Analyzed accidents do not assume fire concurrent with an accident and NFPA-20 requires only an eight hour fuel capability. Therefore, the potential reduction in fuel tank level has no safety significance. Thus, the proposed change cannot create the possibility of an accident of a different type than previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The Fire Service System and its associated equipment is considered "important to safety" but, as stated earlier, changing of the low level alarm set point for the Diesel Fire Pump Fuel Storage Tanks or the surveillance acceptance criteria from 175 gallons to 132 gallons has no detrimental effect on the fire system or its ability to function as required to respond to any of the postulated fires described in the Fire Hazard Analysis. There will be no change in the fuel quality or its testing. Furthermore, the change in the minimum level does not introduce any new credible failure modes for the fire Service System or the SSC's it protects.

The Fire Service Water Supply System is a passive protection system that does not interface directly with any safety system and does not operate, monitor, or control any system which performs a safety function. The systems, structures, or components, required to mitigate the consequences of an accident analyzed in Chapter 14 of the FSAR are not affected by a fire or a malfunction of the fire suppression system.

Therefore, the change in the minimum fuel level cannot create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The ITS Bases does not specify any margins of safety for the Fire Service Water Supply system or directly address any minimum system performance requirements. However, the Fire Protection Plan does specify such system performance requirements which continue to be satisfied. This change does not reduce the system availability or its ability to perform when required to support the Fire Service Water Supply System. Therefore, any margin of safety, as defined in the basis for any Improved Technical specification is not reduced as a result of the implementation of this change.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: CDT-1 Safety Class Downgrade (CIDP97062005)

Description

The intent of this change is to revise the safety classification of CDT-1 and the following components: CDV-48, CDV-102, CDV-103, CDV-142, CDV-173, CDV-174, CDV-175, CDV-213, CDV-216, and CDEF-3, from safety-related to non-safety-related.

This change should have accompanied the completion of MAR 82-09-19-01, the construction of EFT-2. Thus, CDT-1 is no longer credited as a primary source of EFW in the mitigation of any accidents, although it is recognized as one of several back-up sources of EFW.

Unreviewed Safety Question Determination (10 CFR 50 59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The change of classification does not involve any physical modifications to CDT-1 or its components mentioned above. In addition, CDT-1, as a back-up source of EFW, is not a component which can initiate any of the previously evaluated accidents. Therefore, the probability of occurrence of an accident previously evaluated in the FSAR cannot be increased.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The change of classification does not involve any physical modifications to CDT-1 or its components. No functional or operational capabilities of CDT-1 or its associated components are changed by this activity. Moreover, the activity does not reduce the ability of these components to assist in any accident mitigation strategy. Therefore, the consequences of an accident previously evaluated in the FSAR cannot be increased.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The change of classification neither creates nor modifies any interfaces with equipment important to safety. The construction of EFT-2 ensures a reliable, safety-related EFW source.

   The change cannot contribute to a potential degradation of CDT-1 or the components mentioned above as a result of surveillance or testing scope and frequency reduction. No other plant activities (e.g., maintenance, engineering, operations, etc.) which could potentially reduce the reliability of CDT-1 or its associated components are affected by the reclassification. Therefore, the change cannot increase the probability of occurrence of a malfunction of equipment important to safety.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The safety classification change effects no physical changes to any structures, systems, or components important to safety. Further, the safety classification change does not result in a reduction of reliability of CDT-1 or of the components mentioned above. Therefore, the change cannot increase the consequences due to a malfunction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The safety classification change effects no physical changes to any structures, systems, or components important to safety. Neither CDT-1 nor any of the components mentioned above was ever an initiator of any of the accidents previously evaluated in the FSAR, and this remains true, even with the safety classification change. Therefore, the change cannot create an accident of a different type than previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

Again, the safety classification change effects no physical changes to any structures, systems, or components important to safety. The safety classification change creates no new system interfaces, nor modifies the existing ones. Further, apart from the ISI/IST program impact the safety classification does not require any other changes to plant procedures, programs, or activities. Therefore, the change cannot create the possibility of a malfunction of a different type.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The ITS Bases do not explicitly associate safety classification of a component to a margin of safety. Regardless, EFT-2, not CDT-1, is the qualified, safety-related source of EFW. This safety classification change only makes CDT-1 (and the components mentioned above) consistent with other back-up sources of EFW. Therefore, the change does not reduce the margin of safety as defined in the ITS bases.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Fire Protection Plan

Description

The issue to be addressed by this USQD is one of operability of Fire Protection systems, subsystems, components, devices and trains during the performance of surveillance procedures and non-intrusive preventive maintenance activities.

The proposed change to FPP, Section 6.0, contains statements that during surveillance testing or PMs, 1) fire protection systems and subsystems may be considered OPERABLE during surveillance testing if it is capable of being promptly restored by manual operator actions to its normal operating mode for emergency operation, and 2) entry into COMPENSATORY MEASURES AND REPORTS for systems and subsystems that cannot be promptly restored to normal operating mode for emergency operation is not required during the time intervals specified by NOTES in the FPP tables. This time period is defined as four hours for a) fixed water spray subsystems during functional testing when the hand hole covers are removed and isolation valves are closed, b) air flow tests through Control Complex and Auxiliary Building charcoal filter deluge system nozzles, and c) the Halon system in the Cable Spreading Room which is disabled by keyswitch to perform the surveillance procedure.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The fire protection systems are intended to mitigate the consequences of a fire and are not recognized as initiators or contributors to any previously analyzed design basis accident or event described in the FSAR. The proposed changes to the FPP affect operability determinations for FS equipment during surveillance testing and non-intrusive PMs to minimize inappropriate entry into compensatory measures and reporting requirements. Therefore the proposed changes cannot increase the probability of occurrence of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The proposed change to the FPP is only for clarification of the operability status for FS equipment during surveillance and non-intrusive preventive maintenance. The fire protection systems are not credited in the mitigation strategy for any of the previously analyzed design basis accidents or events described in the FSAR. The proposed changes to the FPP affect operability determinations for FS equipment during surveillance testing and non-intrusive PMs to minimize inappropriate entry into compensatory measures and reporting requirements. The changes apply engineering judgment and experience when selecting appropriate time intervals prior to reporting inoperability occurring during surveillance testing.

   The potential consequences for FS equipment failure on safety related equipment could vary depending on the type of suppression/detection, the nature of the failure, and the protected area or equipment involved. It should be noted, however, that (1) FS is a non-safety related, mitigating system and (2) compensatory measures including hourly fire watches, backup fire suppression, and mode constraints are available providing for a defense-in-depth strategy that ensures continued coverage of all protected areas even when specific FS equipment is out of service for surveillance or maintenance. In addition, a stipulation that the system can be manually restored to normal standby condition is now being added which acknowledges that qualified individuals are available at the inoperable equipment during the surveillance interval. Their presence will add a

human factor to restoring the equipment under surveillance to operation and/or determining appropriate additional compensatory measures. Therefore, the proposed changes will not increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

A fire is not postulated to occur coincident with any analyzed design basis accident or event previously analyzed in the FSAR. The fire protection systems are considered important to safety but are intended only to mitigate the consequences of a fire in the plant. The proposed FPP changes affect operability determinations for FS equipment during surveillance testing and non-intrusive PMs in order to minimize inappropriate entry into compensatory measures and reporting requirements. The proposed changes do not affect in any way the capability of the affected FS system or subsystems to perform their intended function(s). No new interfaces or failure modes are introduced by the proposed changes. Therefore, the proposed changes do not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The proposed change to the FPP is only for clarification of the operability status of FS equipment during surveillance and non-instrusive preventive maintenance. The fire protection systems are not credited in the mitigation strategy for any of the previously analyzed design basis accidents or events described in the FSAR. The proposed changes to the FPP affect operability determinations for FS equipment during surveillance testing and non-intrusive PMs to minimize inappropriate entry into compensatory measures and reporting requirements. The changes apply engineering judgment and experience when selecting appropriate time intervals prior to reporting inoperability occurring during surveillance testing.

The potential consequences for FS equipment failure on safety related equipment could vary depending on the type of suppression/detection, the nature of the failure, and the protected area of equipment involved. It should be noted, however, that (1) FS is a non-safety related, mitigating system and (2) compensatory measures including hourly fire watches, backup fire suppression, and mode constraints are available providing for a defense-in-depth strategy that ensures continued coverage of all protected areas even when specific FS equipment is out of service for surveillance or maintenance. In addition, a stipulation that the system can be manually restored to normal standby condition is now being added which acknowledges that qualified individuals are available at the inoperable equipment during the surveillance interval. Their presence will add a human factor to restoring the equipment under surveillance to operation and/or determining appropriate additional compensatory measures. Therefore, the proposed changes will not increase the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The fire protection systems are intended to mitigate the consequences of a fire and are not recognized as initiators or contributors to any previously analyzed design basis accident/event described in the FSAR; it presents no challenge to any fission barriers. No new interfaces or failure modes are introduced by the proposed changes.. The proposed FPP changes only affect operability determinations for FS equipment during surveillance testing and non-intrusive PMs in

order to minimize inappropriate entry into compensatory measures and reporting requirements. Therefore, the proposed changes cannot create the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

A fire is not postulated to occur coincident with any analyzed design basis accident or event previously analyzed in the FSAR. The fire protection systems are considered important to safety but are intended only to mitigate the consequences of a fire in the plant. The proposed FPP changes only affect operability determinations for FS equipment during surveillance testing and non-intrusive PMs to minimize inappropriate entry into compensatory measures and reporting requirements. The proposed changes do not affect in any way the capability of the affected FS system/subsystems to perform their intended function(s). No new interfaces or failure modes are introduced by the proposed changes. Therefore, the proposed changes do not increase the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The Fire Protection Systems' operational requirements were removed from the Technical Specifications under Amendment #147 and are currently documented in the FPP. The FPP, however, is still part of the plant's Operating License per Condition 2.C.(9) such that any proposed change(s) to the FPP are subject to the same level of control as those for the ITS. The ITS Bases contain no margins of safety associated with any FS systems/subsystems. The FPP itself contains no bases discussion and specifies no margins of safety. The proposed changes to the FPP do affect operability determinations for FS equipment during surveillance testing and non-intrusive PMs to minimize inappropriate entry into compensatory measures and reporting requirements. Applicability of the GL 91-18 guidance to selected FS systems/subsystems was determined based on good engineering judgment as documented in IOC Letter PROG97-0227, dtd July 11, 1997 (Exhibit 1) and endorsed by Licensing letter NL97-0142, dtd July 15, 1997. The proposed changes do not affect in any way the capability of the affected FS systems/subsystems to perform their intended function(s). Therefore, the proposed changes cannot reduce any margin of safety as defined in either the ITS Bases or FPP.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Changes to ITS Bases 3.4.5 & 3.4.6

Description

This change revises the Bases for Technical Specifications (TS) 3.4.5, "RCS Loops - MODE 4," and 3.4.6, "RCS Loops - MODE 5, Loops Filled."

The above Bases paragraphs require two RCS loops operable with one RCS loop in operation although the Technical Specification LCOs for these Modes do not require this combination.

These paragraphs were incorrectly added to the Bases for Technical Specifications 3.4.5 and 3.4.6 as part of the original Improved Technical Specifications (Amendment 149).

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   This change is an administrative change to revise information that was incorrectly added to the Bases for Technical Specification 3.4.5 and delete incorrect information added to Bases 3.4.6. No physical changes to the plant are being made. Therefore, this change cannot increase the probability of occurrence of an accident previously evaluated for CR-3.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   This change is an administrative change to revise information that was incorrectly added to the Bases for Technical Specification 3.4.5 and delete incorrect information added to Bases 3.4.6. No physical changes to the plant are being made. Therefore, this change cannot increase the consequences of an accident previously evaluated for CR-3.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   This change is an administrative change to revise information that was incorrectly added to the Bases for Technical Specification 3.4.5 and delete incorrect information added to Bases 3.4.6. No physical changes to the plant are being made. Therefore, this change will not increase the probability of occurrence of a malfunction of equipment important to safety.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   This change is an administrative change to revise information that was incorrectly added to the Bases for Technical Specification 3.4.5 and delete incorrect information added to Bases 3.4.6. No physical changes to the plant are being made. Therefore, this change will not increase the consequences of a malfunction of equipment important to safety.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

   This change is an administrative change to revise information that was incorrectly added to the Bases for Technical Specification 3.4.5 and delete incorrect information added to Bases 3.4.6. No

physical changes to the plant are being made. Therefore, this change cannot create the possibility of an accident of a different type than those previously evaluated for CR-3.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

This change is an administrative change to revise information that was incorrectly added to the Bases for Technical Specification 3.4.5 and delete incorrect information added to Bases 3.4.6. No physical changes to the plant are being made. Therefore, this change will not create the possibility of a malfunction of a different type for equipment important to safety.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

This change does not result in a reduction to the margin of safety as defined in the Bases for any Technical Specifications. This change is an administrative change to revise information that was incorrectly added to the Bases for Technical Specification 3.4.5 and delete incorrect information added to Bases 3.4.6. The requirements for RCS loop operability in Modes 4 and 5 are not being changed.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: ITS Bases B3.8.2

Description

The purpose of this change is to revise the ITS Bases page 3.8-29 to provide clarification the EDG surveillance requirement SR 3.8.1.3. This clarification was determined to be beneficial in support of the TSCRN 215 recently submitted to the NRC. The failure mode of the diesel is not to start. However, the proposed change does not have any affect on the operation of the diesel. It is a clarification of the intent of the EDG surveillance bases statements. The proposed change is to clarify the subject ITS Bases page as follows:

- Specify on the page the intent of SR 3.8.1.3 testing in Mode 5/6 with one EDG operable
- Provide additional reference to SR 3.8.1.3, 3.8.1.8, 3.8.1.11 to clarify the intent
- Add additional clarification for the requirements of performance of SR 3.8.1.3
- Delete a statement "typically taking in excess of one month to complete." This statement does not provide any valid information as related to CR-3 experiences.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   This ITS bases change provides a clarification of the EDG surveillance requirements for SR 3.8.2. It does not have any affect on the surveillance performance or interval. The EDG failure is not credited as an initiator of an accident in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   This ITS Bases change provides a clarification to the EDG surveillance requirements during shutdown (Mode 5/6) and does not have any affect on the dose consequences of any accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   This ITS Bases change does not affect the operational performance of the EDG. It provides a clarification of the surveillance requirements but does not change the SR performance or interval.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The purpose of the SRs is to provide assurance the EDGs will perform their intended safety function when needed. The proposed ITS Bases change does not remove or alter any of the surveillance requirements for the EDG. Consequently there is no increase in dose consequences as a result of this ITS Bases change.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

   The proposed act ..y does not result in a change in the pe:formance, operation, or maintenance of the EDG and consequently does not create the possibility of an accident of a different type.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

   The proposed change clarifies the SR to be performed in accordance with SP-354. The procedure (SP-354) is currently in effect and approved.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

   There are no margins associated with this activity in the ITS Bases. It is a SR which is being clarified and there is no intent to revise the SR requirements. The clarification does not reduce any margin of safety which could have been stipulated by the NRC for the EDGs.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: LTOP Limits and Administrative Controls

Description

Based on the new LTOP analysis, changes are required to several plant documents and procedures to implement and document the controls. These include the FSAR, the EDBD for RCS, and several OPs, EOPs, ARs, and SPs. The PORV low pressure setpoint has also changed. The specific setpoints and controls which are relevant to the LTOP changes are as follows:

1. An enable temperature of ≤253 degF has been determined based on the N-514 analysis. The previous administrative limit was 283 degF.

2. A maximum water level in the pressurizer of 160 inches has been determined in order to provide at least 10 minutes for operator response to terminate the limiting postulated RCS overpressure event prior to exceeding the LTOP limits as determined by the N_514 analysis. The previous administrative limit was 220 inches.

3. No more than one makeup pump will be capable of inadvertently injecting into the RCS. This control is implemented to preclude the increased makeup flow due to more than one pump.

4. HPI must be deactivated. This control is implemented to preclude the increased makeup flow through the HPI valves. The previous controls required racking out.

5. The core flood tanks (CFTs) must be isolated from the RCS if the CFT pressure is above the allowable RCS pressure at a given temperature as determined by the PTLR and procedural limits.

6. The minimum RCS pressure which should not be exceeded has been determined to be 548 psig. The previous PORV low pressure setpoint was ≤550 psig.

The RCS pressure limits for LTOP assumes no RC pump operation below 85 degF and no more than two pumps operating below 225degF. The procedural valves for these pump operating limits are 95 degF and 235 DegF respectively to account for instrument uncertainty. Four pump operation is not allowed in LTOP space. There were no previous RCP restrictions for LTOP. The new restrictions are within the normal RCP operating windows.

7. IF the PORV is inoperable for more than one hour, then the makeup tank level must be limited to ≤88 inches and the makeup tank low-level interlock to the borated water storage tank deactivated within 12 hours. The procedural limits for makeup tank level is further adjusted to ≤84 inches to account for instrument uncertainty. This control; will limit the available water for injection such that the LTOP pressure limit can not be exceeded. The previous administrative limit was ≤70 inches.

8. If the CFT can not be isolated as required within one hour, then the RCS temperature must be maintained at >197 degF or the CFT pressure must be maintained at <457 psig within 12 hours. The procedural limits will be further adjusted to 207 degF and 444 psig due to instrument uncertainty to assure that the analyzed limits are not exceeded. This will assure that the inadvertent CFT injection can not exceed LTOP pressure limits. This is a new LTOP control which was defined in the B&W standards TS.

9. If the pressurizer level is greater than the defined limits for more than one hour, then the makeup control valve and its associated isolation valve must be closed and maintained closed, and any RCS heatup stopped within 12 hours. This control has not changed as a result of the revised analyses.

10. If the pressurizer level exceeds the defined limits and the PORV is inoperable for more than one hour, then the RCS must be depressurized and a vent of equal to or greater than 0.75 sq.in. established within 12 hours. This control has not changed as a result of the revised analyses.

11. Surveillances will be performed to verify that LTOP controls are being implemented.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The purpose of LTOP is to assure that the RCS is operated within the bounds of the approved analysis and only applies at temperatures of 259 degF and below. The revised LTOP limits and controls do not impact any of the accidents evaluated in the FSAR. Therefore the LTOP limits and controls so not affect the probability of occurrence of any accident evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The purpose of LTOP is to assure that the RCS is operated within the bounds of the approved analysis and only applies at RCS temperatures of 259 degF and below. The revised LTOP limits and controls do not impact any of the accidents evaluated in the FSAR. Therefore there in no increase in radioactive releases due to the changes.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The purpose of LTOP is to assure that the RCS is operated within the bounds of the approved analysis. The LTOP controls are either consistent with or more conservative than previously approved LTOP controls with respect to the impact on plant shutdown operations with the exceptions of the pressurizer level requirement. Although the allowable pressurizer maximum level is reduced from 220" to 160", this level is still within the normal operating band and continues to provide adequate volume for RCS shrinkage. Probabilities of failure associated with the existing credible failure modes have not changed. There are no physical modifications being made to equipment as a result of these changes except for the PORV setpoint which is being addressed with a separate SA/USQD. The revised PORV flow capacities are still above the maximum postulated mass input of LTOP. therefore there is no increase in the failure probabilities of equipment.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The purpose of LTOP is to assure that the RCS is operated within the bounds of the approved analysis. The LTOP controls are either consistent with or more conservative than previously approved LTOP controls with respect to the impact on plant shutdown operations with the exception of the pressurizer level requirement. Although the allowable pressurizer maximum level is reduced from 220" to 160", this level is still within the normal operating band and continues to provide adequate volume for RCS shrinkage. Existing failure effects have not been changed. Therefore, there can be no change in the consequences of a malfunction of equipment important to safety due to the changes. There are no physical modifications being made to equipment as a result of these changes except for the PORV setpoint which is being addressed with a separate SA/USQD. The revised PORV flow capabilities are still above the maximum

postulated mass input for LTOP. Therefore there is no increase in radioactive releases due to the changes.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The purpose of LTOP is to assure that the RCS is operated within the bounds of the approved analysis and only applies at RCS temperatures of 259 degF and below. No new equipment is being added and the setpoint and implementation changes do not affect the methods of operation or availability of equipment as previously evaluated. Therefore the LTOP limits and controls do not create the possibility of any new accident than previously evaluated in the FSAR

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The purpose of LTOP is to assure that the RCS is operated within the bounds of the approved analysis and only applies at RCS temperatures of 259 degF and below. No new equipment is being added and the setpoint and implementation changes do not affect the methods of operation or availability of equipment as previously evaluated. This activity does not create any new equipment interfaces or failure modes. the new limits do not adversely impact shutdown plant operations in any way. Therefore the LTOP limits and controls do not create the possibility of any different type of malfunction of equipment than previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The current ITS does not include any LCOs or Bases for LTOP limits or controls. Therefore the ITS defined margin of safety has not been reduced. A new LTOP ITS section has been developed ad has been submitted to the NRC for approval. All of the changes described in this USQD are included in the submittal and will define the margin of safety. The margin of safety has been determined to be provided by having redundant and diverse LTOP control. The primary control is provided by assuring at least 10 minutes for operator action to mitigate an LTOP event. The second is to provide automatic pressure relief capacity to preclude RCS overpressurization.

Compared with the previous administrative controls, the revised enable temperature is now 259 degF which eliminates a previous conflict with the ECCS-Operating ITS due to the previous enable temperature of 283 degF.

The revised process for deactivating HPI now allows the removal of power to the valves from the main control board. This provides an option which can improve the operators ability to restore HPI quickly if needed for accident mitigation in mode 4, and still provides acceptable control to preclude inadvertent HPI activation by requiring two actions (restoring power and opening valves).

The new LTOP controls are consistent with ASME Code Case N-514 and the recommendations of NRC Generic Letter 88-11 and provide adequate protection for LTOP events. Use of ASME Code Case N-514 has been approved by the NRC. Therefore, there can be no reduction in the margin of safety.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: OP-103B "Plant Operating Curves"

Description

Makeup Tank curve change
The makeup tank functions as the source of makeup and seal injection during normal operation. It also functions as a means by which chemicals can be added to the RCS. One method is to maintain a hydrogen overpressure on the MUT to keep the dissolved hydrogen concentration at desired levels. The importance of the makeup tank overpressure limits is to prevent gas from being entrained while on HPI, since the entrained gas could lead to flow blockage or pump damage. The design basis accident of concern is a LOCA.

This particular change to the design limit on the makeup tank is based on calculation M94-0053, Rev. 4, and is more conservative (more restrictive) than the previous limit by approximately 0.88 psig at the 55 inch level. This calculation was performed to account for:

a. Increasing HPI flow from 575 gpm to 600 gpm based on a change in runout flow.

b. Lowering the BWST temperature from 100 degrees F to 40 degrees F so that it will include the entire ITS acceptable temperature range.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   No FSAR accident is initiated by the makeup tank pressure or its contents. Nor can the MUT pressure affect another component such that it initiates an FSAR accident. Therefore, the proposed change will not increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Lowering the overpressure on the MUT cannot affect any component such that an accident release (consequences) is made worse. The reason for changing the curve was to ensure a proper overpressure that will not gas bind the HPI pump and make the consequences of an accident worse. Therefore, making this change will not increase the consequences of an accident previously evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The purpose of the proposed change in the design operability limit for MUT overpressure is to prevent entrainment of gas into the system that could block flow or fail ECCS equipment. By setting the design curve to protect against the worst case conditions, including maximum HPI pump runout and minimum allowed BWST temperature, the entrainment of gas is prevented and the probability of malfunction of equipment important to safety is actually decreased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The only effect of this change is to set the MUT pressure such that gas is not entrained into the HPI when actuated for a LOCA. The consequences of HPI, LPI, RB spray or any other component malfunctioning will be unaffected by the 0.88 psig change in MUT overpressure. Because there is no change in the operation of equipment important to safety as a result of this proposed change, the assumptions in the existing accident analyses will remain valid. Therefore, the consequences of a malfunction of equipment important to safety is not increased by this change.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The change in the overpressure on the makeup tank cannot initiate any accident, nor can it affect another component such that the other component initiates an accident. The only affect that lowering of the MUT overpressure can have is on gas entrainment in the HPI during a LOCA or other HPI initiation. This has been covered in the other questions and is a conservative change. There are no other operational effects on the makeup and purification system that could result in an accident. Therefore, the proposed change in the MUT overpressure does not create the possibility of an accident of a different type.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

There is no minimum required positive pressure in the MUT to prevent damaging or causing a malfunction of equipment important to safety. The only concern is too high a pressure which can lead to gas entrainment to the suction of the HPI pumps. Both the current and proposed OP-103B curves require no minimum positive MUT pressure. Since no minimum positive pressure in the MUT is required to protect equipment or prevent malfunction, reducing the overpressure by 0.88 psig will not create the possibility of a different type of malfunction of equipment than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The change to the MUT overpressure calculation was based, in part, on assuring the pressure compensated for the full range of BWST temperature allowed by ITS 3.5.4. By doing so it ensured that the margin of safety was preserved when operating in accordance with ITS 3.5.4 and its bases. ITS 3.5.2 and 3.5.3, and their bases, are relevant to maintaining ECCS loops operable (2 loops in Modes 1 through 3 and 1 loop in Mode 4). Though not specifically mentioned, proper MUT overpressure is required to prevent gas entrainment to the HPI pump suction, and is therefore required to ensure operability of the ECCS loop(s). Therefore, this change helps ensure the margin of safety of the Tech. Spec. bases by maintaining ECCS operability.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: OP-404 "Decay Heat Removal System"

Description

The proposed changes to the Decay Heat Removal System Operating Procedure (OP-404) constitute a major revision that allows for single and dual (or parallel) train operation, as applicable, to reflect the modes of operation as described in the proposed change to Section 9.4 of the FSAR. Specifically, operation of only one DH train is required for normal RCS cooldown (from 280 to 140 deg F) and subsequent decay heat removal. One train of DH is capable of removing the required heat load without overcooling. Use of both trains would only be necessary during emergency operation to accomplish RCS cooldown in 14 hours. For filling and draining of the fuel transfer canal, both trains of DH are required to be operated. One DH train is temporarily aligned to transfer water between the fuel transfer canal and the BWST while the second train remains dedicated to the decay heat removal function. The proposed procedure changes, along with clarifying existing information and deleting non-applicable sections, provide operational instructions for the above DH System operating modes to bring plant operations into agreement with FSAR Section 9.4.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   There is no design basis accident in Section 14 of the FSAR that will be affected either directly or indirectly by these changes to OP-404 and the FSAR. The changes allow for single or dual train operation for shutdown decay heat removal, as applicable, to reflect analyzed parameters, and clarify the use of parallel train operation when filling or draining the Fuel Transfer Canal. None of these changes affect the availability of the system to perform its ECCS (LPI) or decay heat removal functions. Allowing dual train operation will not introduce any new failure modes. Per calculation M95-0013, the decay heat drop line is capable of carrying the combined decay heat flow for both pumps and satisfying NPSH requirements for both DH pumps with a flow setpoint of 3000 gpm per train (up to a maximum of 3300 gpm per train). In addition, loss of one train while in dual train operation is provided by applicable ITS which stipulate cooling loop availability requirements of which none requires both trains of DH to be in operation simultaneously. Dual train operation would most likely be used only during a Mode 4 cooldown at which time an OTSG would be available as an alternate source of cooling. As a result, these changes cannot increase the probability of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Since there is no design basis accident in Section 14 of the FSAR or licensing basis event that will be affected either directly or indirectly by these changes to OP-404 and the FSAR, there will be no increase in radiological consequences due to this procedure and FSAR revision.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The proposed changes do not cause the DH System to be operated outside of design or in a less conservative manner. Dual train operation has been shown to be a safe and viable mode of operation even though it would only be needed for emergency operation to achieve an accelerated cooldown from 280 to 140 deg F in 14 hours. Calculation M95-0013 determined that with a flow setpoint of 3000 gpm per train (up to a maximum of 3300 gpm per train), the decay heat drop line

will carry the combined decay heat flow for both pumps and satisfy NPSH requirements for both DH pumps. Based on this calculation, it was determined that parallel operation of both DH trains is possible and an acceptable operating mode. No new failure mechanism is introduced by parallel train operation that could contribute to a malfunction of equipment. The potential problem of overcooling is administratively controlled by limiting normal DH cooling to one train and restricting dual train use to emergencies where a forced cooldown might be required. Since dual train operation is not considered a normal mode of operation, loss of one train while in this lineup will not constitute a new failure mode. This failure is covered by applicable ITS which stipulate cooling loop availability requirements of which none requires both trains of DH to be in operation simultaneously. Dual train operation would most likely be used only during a Mode 4 cooldown at which time an OTSG would be available as a alternate means of cooling. Because no new failure modes are introduced by the proposed procedure and FSAR change, the probability of occurrence of a malfunction of equipment important to safety is not increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The proposed changes to OP-404 and the FSAR do not increase the possibility of an accident. The changes reflect analyzed parameters with respect to the individual cooling capacity of each DH train. The DH System is analyzed for both single and dual train operations. Dual train operation has the potential to overcool the RCS beyond the NDT curve limits which could lead to nonductile failure of the RCS pressure boundary. This overcooling potential is administratively prevented by limiting normal DH cooling to one train and restricting dual train use to emergencies where a forced cooldown might be required. The proposed change to the FSAR will reflect these limitations for operation. As a result, the proposed changes will not increase the radiological consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The changes, as proposed, reflect analyzed parameters with respect to single and dual train operations based on the individual cooling capacity of each train. System design provides for safe operation in either mode. Calculation M95-0013 determined that with a flow setpoint of 3000 gpm per train (up to a maximum of 3300 gpm per train), the decay heat drop line will carry the combined decay heat flow for both pumps and satisfy NPSH requirements for both DH pumps. Based on the cooling capacity of the individual trains, dual train operation is only a viable lineup for emergency operation where an accelerated cooldown from 280 to 140 deg. F in 14 hours might be required. Precluding the use of dual train operation for normal DH cooling eliminates the potential to overcool and possibly exceed the PTLR cooldown curve limits for RCS NDT. The proposed change to the FSAR averts a potential overcooling problem and neither of the revisions to the procedure or FSAR introduce any new failure modes. Therefore, no new accident can result due to the proposed change to OP-404 and the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The proposed changes do not affect the actual operation of the system or the way each train operates individually, only the number of trains required to fulfill a specific function during shutdown (normal DH cooling and Fuel Transfer Canal fill and drain), which is based on analyzed parameters as per available design capacity. Dual train operation, which has been shown to be a safe and viable mode of operation by analysis, would only be needed for emergency operation to

achieve an accelerated cooldown from 280 to 140 deg. F in 14 hours. Calculation M95-0013 determined that with a flow setpoint of 3000 gpm per train (up to a maximum of 3300 gpm per train), the decay heat drop line will carry the combined decay heat flow for both pumps and satisfy NPSH requirements for both DH pumps. Based on this calculation, it was determined that parallel operation of both DH trains is possible and an acceptable operating mode. Since dual train operation is not considered a normal mode of operation, loss of one train while in this lineup will not constitute a new failure mode. This failure is covered by applicable ITS which stipulate cooling loop availability requirements of which none requires both trains of DH to be in operation simultaneously. Dual train operation would most likely be used only during a Mode 4 cooldown at which time an OTSG would be available as a alternate means of cooling. Because no new failure modes are introduced by the proposed procedure and FSAR changes, the possibility of a different type of malfunction of equipment important to safety is not increased.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The proposed changes do not cause the LPI System to be operated outside of design or in a less conservative manner. The changes are in accordance with analyzed parameters and do not affect the availability of the system to perform its ECCS (LPI) or decay heat removal functions. The ITS margin is not impacted by these proposed changes to OP-404 and the FSAR.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Temporary Instruction TI-OP406 "Spent Fuel Cooling System"

Description

Temporary Instruction TI-OP406 will provide Operations instructions for aligning the Spent Fuel Cooling System (SF) pumps for decay heat cooling. This change may be necessary, and will only be utilized, in the event Pump RWP-3A no longer provides adequate cooling such that the capability of maintaining the Plant in Mode 5 is questionable.

This temporary cooling instruction will not use the normal flow path of RW through the DC Heat Exchangers DCHE-1A and DCHE-1B with DC cooling provided through the DH Heat Exchangers DHHE-1A or DHHE-1B, rather will utilize the SF Pumps SFP-1A or SFP-1B and the corresponding SF Coolers SFHE-1A or SFHE-1B for cooling with SW OR CI as the heat sink.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The function of decay heat cooling will be temporarily provided through operation per Temporary Instruction TI-OP406. The replacement of one means of decay heat cooling method by another will not increase the probability of any accident previously evaluated in the SAR for the current mode of operation. Temporary Instruction TI-OP406 will only be implemented in the event that RW Pump RWP-3A is deemed to be incapable of performing as required. The period of time that TI-OP406 will be maintaining decay heat cooling will only be as long as required to restore RW Train B or to restore proper operation of RWP-3A.

   Implementation of TI-OP406 does not require any physical modification to any Plant system. Valve lineups for the alternate decay heat cooling are within the original design of system interfaces. Following operations per TI-OP406, valve lineups will be returned to those required for normal Mode 5 operations.

   The heat removal capability of the SF System in the valve lineup per Temporary Instruction TI-OP406 is much greater than the heat generated by the Reactor at this time in core life. TI-OP406 restores a defense in depth that currently does not exist. Since the Spent Fuel Pool will be monitored and Emergency Operating procedures will be entered in the event the Pool reaches 150F, this additional defense in depth further enhances the capability of the Plant to operate safely. As demonstrated in A.1 of the USQD, Mode 5 accidents cannot occur. As such, operations per TI-OP406 cannot increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Implementation of Temporary Instruction TI-OP406 has no means to alter the accident mitigation capabilities of any system or component required to offset the potential radiological consequences of a LOCA, Steam Generator Tube Failure Accident or Station Blackout, nor will any other anticipated event or transient analyzed in the SAR be impacted by operation per TI-OP406. SF System is a closed loop system. As such, fission product barriers (fuel cladding, RCS pressure boundary, Containment integrity) remain intact. The proposed changes have no means to challenge dose limits imposed by 10CFR100. Accidents postulated to occur during Mode 5 are

not credible during the activity. Therefore, the consequences of an accident previously evaluated in the SAR will not increase.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The Plant is not physically altered in order to implement Temporary Instruction TI-OP406 and no new failure modes which cannot be countered or tolerated are introduced as discussed in A.1 of the USQD. Temporary Instruction TI-OP406 will provide a defense in depth that does not currently procedurally exist for decay heat cooling, and will not be applied unless the RW Pump RWP-3A is not providing adequate cooling. Appropriate measures have been put in place to ensure that SF Pool heat up beyond design limits will not occur (SF Pool temperature limit for structural integrity). The SF configuration to be utilized has greater cooling capability than is required for this configuration and will not be challenged in this respect. Interfacing systems will be unaffected by the implementation of TI-OP406. Therefore, an increase in the probability of occurrence of a malfunction of equipment important to Safety is not feasible.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

As discussed above, no system important to Safety required for accident mitigation will be impacted. The valve lineups necessary to implement TI-OP406 are part of the original design of the system interfaces. The DH, DC, RW, SF, SW and CI Systems, under normal operations will continue to function as designed following implementation of TI-OP406. As demonstrated in A.1 of the USQD, Potential radiological consequences of a LOCA, Steam Generator Tube Failure Accident or Station Blackout, or any other anticipated event or transient for which the Plant is designed to cope cannot be increased due to the changes proposed. No challenge to fission product barriers is possible. The changes have no means to affect dose limits prescribed by 10CFR100. Therefore, an increase in the consequences of a malfunction of equipment important to Safety previously evaluated in the SAR is not credible.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

Implementation of TI-OP406 will not result in any physical change to the Plant. As discussed previously, since no new failure modes are introduced which cannot be tolerated or countered, a different type of accident cannot be initiated. Following use of TI-OP406, all valve lineups will be returned to the required lineups for Mode 5 operations. Accidents postulated to occur during Mode 5 cannot occur; the proposed activity will not create an accident of a different type than any previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The use of Temporary Instruction TI-OP406 is restricted to use only if the RW Pump RWP-3A becomes unavailable. TI-OP406 utilizes valve lineups which were always part of the original Plant system interfaces. TI-OP406 will not result in any physical change to the Plant. RCS pressure will be maintained less than relief capacity of the flow path piping. Since no new failure modes are introduced which are of concern, a different type of accident cannot be initiated. All accident, anticipated events and transient analyses analyzed in the SAR attributable to Mode 5 will not be impacted.

Temporary Instruction TI-OP406 will use SF Cooling equipment to cool the RCS in place of the normal lineup of the DH System. In this capacity, the SF lineup will perform nearly the same function as the DH System performed. RCS pressure will be maintained within piping design limits and SF Pool temperature will be monitored to remain within allowable limits. Loss of SF components in this configuration would be equivalent to loss of the corresponding DH equipment. Therefore, the proposed activity will not create an accident of a different type than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The conservatisms inherent in the analyses performed and the administrative controls included in TI-OP406 ensure the Spent Fuel Pool will not heat up beyond Improved Technical Specification (ITS) limits. The Improved Technical Specifications do not provide detail to the level of the subject analyses results but do restrict the maximum temperature of the RCS and SF Pool. Administrative measure in TI-OP406 minimize the possibility of approaching ITS limits. The ITS establishes the minimum performance requirements of the DH, DC, RW, SF and SW Systems and the use of TI-OP406 in no way will prevent the systems from satisfying ITS requirements. Margins of Safety found in other commitment documents such as the Safety Evaluation Reports (SERs), implied commitments to the Standard Review Plan (SRP), Offsite Dose Calculation Manual (ODCMM), Core Operating Limits Report (COLR), Design Basis Documents, etc. cannot be reduced as a result of this activity. Therefore, the margin of Safety as defined in the bases for any Technical Specification will not be reduced by the implementation of the proposed changes.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Temporary Instruction TI/OP407

Description

The Condensate Demineralizer Regeneration Neutralization Tank (SDT-1) receives waste from the turbine building sump and provides a means for collection, sampling, and storage of the liquids until they are ready for release. This Temporary Instruction has been written to provide a means to operate SDP-7 the SDT-1 recirc pump while the level indication (CS-112-lt) is out of service.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The Condensate Demineralizer Regeneration Neutralization Tank (SDT-1) release path is described in the FSAR following a SGTR accident. However, this system does not initiate any FSAR events. Therefore, this change cannot increase the probability of an accident described in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The FSAR does not discuss the normal release flow paths allowed for SDT-1 since this TI will only be applicable in Mode 5, the Feedwater Pumps (MFWPs) and Reactor Coolant Pumps (RCPs) are shutdown. Thus, there is no flow through the primary side or secondary side of the steam generators in which to have a credible SGTR accident. The release process described in this temporary instruction is the same flow path used during normal plant operations. A release made with SDP-7 shut down interlock failed will not change the dose quantity or activity during the release. The sampling requirements directed by Chemistry procedures and regulated under the ODCM are still applicable for this temporary instruction. Therefore, there is no increase in the consequences of a SGTR accident.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   By having the interlock to trip SDP-7 on low level bypassed, there is an increased potential to damage SDP-7 due to cavitation. However, SDP-7 is not safety related and is not required or used as a support system to any equipment required for accident mitigation. SDP-7 is not considered to be equipment important to safety. The remaining instructions in TI/OP407N-01 operates plant equipment in the same manner as previously approved procedures.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   This TI permits the recirculation of SDT-1 and the release of its contents to the settling pond. The only credible malfunction is that of SDP-7. SDP-7 is only used to recirc SDT-1 for this temporary instruction. Therefore, it performs no mitigating functions. A malfunction of this pump cannot increase the consequences of a malfunction of equipment important to safety.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

TI/OP407N-01 does not interface the Condensate Demineralizer Regeneration Neutralization Tank (SDT-1) to any safety related equipment or to any equipment that could conceivably create a challenge to a fission product barrier or fluid boundary. Neither does this TI create any new interfaces to such equipment. Further, it will not impact the design function of any safety related equipment. Therefore, it cannot create the possibility of a different type of accident than evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The activity described by TI/OP407N-01 will not impact the operation of any safety related equipment. Cautions were placed in the procedure to insure that SDT-1 level is monitored to prevent SDP-7 from cavitating. In the event that SDP-7 were to cavitate and fail, this failure would not lead to a malfunction of any equipment important to safety.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The release methods from SDT-1 are not contained in Improved Technical Specifications. However, the ODCM was reviewed. The instructions provided in TI/OP407N-01 do not contradict or reduce the margins described for releases from CR-3. The same sampling methods will be used as directed by Chemistry procedures to ensure compliance with the ODCM.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Temporary Instruction TI-OP408 "Nuclear Services Cooling System"

Description

Precursor Card (PC) 97-7385 documents the apparent degradation of Nuclear Service and Decay Heat Seawater System (RW) Pump RWP-3A. Pump discharge pressure has decreased to as low as 15 psig as evidenced by the low pressure alarm, but has since leveled off to approximately 5 psig lower discharge pressure (approximately 20 - 21 psig) than past pump performance. This condition was discovered at approximately 1915 on October 26, 1997, while the Plant was in Mode 5 (Cold Shutdown).

Temporary Instruction TI-OP408 will provide Operations instructions for staging and isolation of RWP-3A for the inspection. This change has become necessary to support inspection of Pump RWP-3A.

Normal flow path through the DC Heat Exchangers DCHE-1A or DCHE-1B without RW cooling will be maintained. Normal flow will be maintained through the DH Heat Exchangers DHHE -1A or DHHE-1B.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The function of decay heat cooling will be altered temporarily by isolating RW cooling to the DC Heat Exchangers. The alternate means of decay heat cooling method by another system means will not increase the probability of any accident previously evaluated in the SAR for the current mode of operation. Temporary Instruction TI-OP408 will only be implemented for the shutdown and inspection of RW Pump RWP-3A. The period of time that TI-OP408 will be utilized will only be as long as required to perform needed repairs and restore proper operation of RWP-3A.

   Implementation of TI-OP408 does not require any physical modification to any Plant system. Equipment lineups for the isolation will be controlled by the approved CR-3 Switching/Tagging procedure which will ensure following performance, lineups will be returned to those required for normal Mode 5 operations.

   Since the RCS and DH System will be monitored, alternate backup cooling and ultimately Emergency Operating Procedures will be entered in the event the DC reaches 105°F, this additional defense in depth further enhances the capability of the Plant to operate safely. As such, operations per TI-OP408 cannot increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Implementation of Temporary Instruction TI-OP408 has no means to alter the accident mitigation capabilities of any system or component required to offset the potential radiological consequences of a LOCA, Steam Generator Tube Failure Accident or Station Blackout, nor will any other anticipated event or transient analyzed in the SAR be impacted by operation per TI-OP408. The proposed changes have no means to challenge dose limits imposed by 10CFR100. Accidents postulated to occur during Mode 5 are not credible during the activity. Therefore, the consequences of an accident previously evaluated in the SAR will not increase.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The Plant is not physically altered in order to implement Temporary Instruction TI-OP408 and no new failure modes which do not have suitable backups are introduced. Temporary Instruction TI-OP408 will provide procedural guidance for securing RW Flow to decay heat cooling. Appropriate measures have been put in place to ensure that RCS and DH Temperatures are monitored to ensure DH and DC System heat up beyond design limits will not occur (for structural integrity). Therefore, an increase in the probability of occurrence of a malfunction of equipment important to safety is not feasible.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

No system important to Safety required for accident mitigation will be impacted. The DH and DC Systems, under normal operations will continue to function during the performance of the inspection and will be restored following implementation of TI-OP408. Potential radiological consequences of a LOCA, Steam Generator Tube Failure Accident or Station Blackout, or any other anticipated event or transient for which the Plant is designed to cope cannot be increased due to the changes proposed. No new interfaces or challenges to fission product barriers is created. The changes have no means to affect dose limits prescribed by 10CFR100. Therefore, an increase in the consequences of a malfunction of equipment important to Safety previously evaluated in the SAR is not credible.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

Implementation of TI-OP408 will not result in any physical change to the Plan. Since no new failure modes are introduced which cannot be tolerated or countered, a different type of accident cannot be initiated. Following use of TI-OP408, the RW System will be restored to the as found configuration required for current Mode 5 operations. As demonstrated herein, accidents postulated to occur during Mode 5 cannot occur; the proposed activity will not create an accident of a different type than any previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The use of Temporary Instruction TI-OP408 is restricted to use only during the inspection of the pump during the current Mode 5 configuration. TI-OP408 isolation utilizes equipment lineups which were always part of the original Plant and system interfaces. During TI-OP408, RW Flow to the DC will be interrupted, subsequent restoration will not result in any physical change to the Plant. RCS pressure will be maintained less than relief capacity of the flow path piping. Since no new credible failure modes are introduced, a different type of accident cannot be initiated. All accident, anticipated events and transient analyses analyzed in the SAR attributable to Mode 5 will not be impacted.

Temporary Instruction TI-OP408 will temporarily interrupt RW Cooling equipment to cool the DH, DC and ultimately the RCS. RCS pressure will be maintained within piping design limits and DH/RCS temperature will be monitored to remain within these allowable limits. Loss of RW components in this configuration would be equivalent to loss of the corresponding DH equipment. Therefore, the proposed activity will not create a malfunction of equipment important to safety different type than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The conservatisms inherent in the analyses performed and the administrative controls included in TI-OP408 ensure the RCS will not heat up beyond Improved Technical Specification (ITS) limits. The Improved Technical Specifications do not provide detail to the level of the subject analyses results but do restrict the maximum temperature of the RCS and DH System. Administrative measure in TI-OP408 minimize the possibility of approaching ITS limits. The ITS establishes the minimum performance requirements of the DH System in other modes and the use of TI-OP408 in no way will prevent the systems from satisfying ITS requirements. Therefore, the margin of safety as defined in the bases for any Technical Specification will not be reduced by the implementation of the proposed changes.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Precursor Card 97-0056

Description

This SA/USQD supports the non-safety related classification for the main lube oil backup motors and pumps, MUP-3A/B/C and the gear lube oil backup pump motors, MUP-5A/B/C. The dc motor driven main lube oil backup pumps and pump motors, MUP-3A/B/C and the dc motor driven gear lube oil backup pump motors, MUP-5A/B/C are designated as non-safety related but were originally designated (N*) and (S*) respectively. The classification for the dc motor driven gear lube oil backup pumps, MUP-5A/B/C is unchanged and continues to be designated as safety related. The associated power and control circuits will also be maintained as non-safety related consistent with CR3 Electrical Design Criteria. The design changes which will maintain circuit isolation and separation criteria for the associated power and control circuits will be addressed as an FCN under MAR 95-10-02-01. The re-classification of the backup lube oil pumps will allow the makeup pumps to continue operation for a failure of the non-safety related portions of the backup lube oil pumps without an operability assessment, will allow the backup lube oil pumps to be maintained without fire protection, will lower maintenance cost and will lessen operator burden by not requiring backup lube oil pumps for operation of the makeup pumps.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The operation of the backup lube oil pumps will remain unchanged by the backup lube oil pump's classification change. The classification change does not change the function, design or operation of the makeup/HPI pumps. A failure of a makeup pumps lube oil system can only cause a failure of a makeup pump to operate and not initiate an accident. The failure of the makeup pump has been evaluated as a single failure of the ECCS which has been evaluated in chapter 14, section 14.2.2.5.3 of the FSAR. Therefore, the classification change will not increase the probability of occurrence of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   A failure of either the main lube oil pumps, MUP-2A/B/C (safety related) or the integral shaft driven gear lube oil pumps during a design basis accident will cause a loss of the associated makeup/HPI pump and ECCS HPI train if no credit is assumed for the main lube oil backup pump, MUP-3A/B/C (classification changed to non-safety related) and the gear lube oil backup pump, MUP-5A/B/C (classification changed to non-safety related). However, the independent and redundant ECCS HPI train will operate and fulfill the safety function described in chapter 14 of the FSAR.

   The classification change of the backup lube oil pumps from safety to non-safety related does not introduce any new common mode failures to the makeup/HPI pumps. For a loss of offsite power, the makeup/HPI pumps will coast down without forced lubrication if no credit is assumed for the lube oil main backup pumps, MUP-3A/B/C (classification changed to non-safety related) and the gear lube oil backup pump, MUP-5 A/B/C (classification changed to non-safety related). The makeup/HPI pump coastdown and dead bus time without forced lubrication from the DC powered backup lube oil pumps following a LOOP/ES has been evaluated and found to not cause any damage to or cause a delay in the availability of the makeup/HPI pumps.

Therefore, the classification change does not increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The main and backup lube oil pumps share a common pump discharge header but do not share a common pump suction header. Each lube oil pump's discharge has a safety related check valve to prevent a failure of a lube oil pump's pressure boundary from affecting the other lube oil pump's performance. The main lube oil backup pump's housing is contained within the lube oil reservoir tank. A failure of the non-safety related main lube oil backup pump and pump's motor would not introduce any new failure modes or have any new adverse affect upon the safety related main lube oil pump.

The integral shaft driven gear lube oil pump, main gear lube oil pump and gear lube oil backup pumps share a common pump discharge header and a common pump suction header. Each lube oil pump's discharge has a safety related check valve to prevent back flow from one pump to another pump. The check valves do not prevent the failure of one lube oil pump's pressure boundary from affecting the other lube oil pumps. Although, the motor for the gear lube oil backup pump is non-safety related, all of the pumps are safety related for the purpose of pressure boundary integrity. A failure of the non-safety related gear lube oil backup pump's motor would not introduce any new failure modes or have any new adverse affect upon the safety related gear lube oil backup pump.

The shaft driven gear lube oil and the gear lube oil backup pumps can be operated at the same time for an indefinite period without degradation of the gear assembly's lube oil subsystem. Also the main lube oil and main lube oil backup pumps can be operated at the same time for an indefinite period without degradation of the pump and motor lube oil subsystem. Adequate over pressure protection and cooling is provided for that mode of operation.

The power and control circuits for the backup lube oil pumps are installed (MAR 95-10-02-01) and maintained in accordance with the CR3 Electrical Design Criteria for Separation and Isolation and consequently will not degrade the makeup and purification system or the ECCS or other safety systems.

The responsibility for providing lube oil to the makeup/HPI pumps is with the main lube oil pumps, MUP-2A/B/C (safety related) or the integral shaft driven gear lube oil pumps (safety related). The main lube oil pumps were evaluated in MAR 95-10-02-01 wit PRA statistics and were found to have a successful start rate of greater than 99.8%. The classification change from safety related to non-safety related of the backup lube oil pumps does not change the reliability impact operation and design of the main lube oil pumps, MUP-2A/B/C or the integral shaft driven gear lube oil pumps which are required for the makeup/HPI pump to be operability.

Since the reliability of the lube oil pumps required for the operation of the makeup/HPI pumps remains unchanged and failure of a backup lube oil pump with non-safety related parts will not have a negative impact on the main or gear lube oil pumps, the probability of the makeup/HPI pumps malfunctioning has not increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The main lube oil pumps start automatically after a LOOP or SBO which previous to MAR 95-10-02-01 required operator action to start the main lube oil pumps and depended upon the backup lube oil pumps to provide lubrication. Backup lube oil pumps are no longer required after a LOOP or SBO. The re-classification of the backup lube oil pumps to non-safety related does not change the controls or operation of the backup lube oil pumps or the makeup pumps. No additional operator action is required due to the classification change of the backup lube oil pumps.

The power and control circuits for the backup lube oil pumps are installed (MAR 95-10-02-01) and maintained in accordance with the CR3 Electrical Design Criteria for Separation and Isolation. Therefore, any credible failure of the power and control circuits for the backup lube oil pumps will not degrade the makeup and purification system or the ECCS or other safety systems.

Any credible failure of the main lube oil backup or gear lube oil backup pump would not have an operability affect upon the associated makeup pump, MUP-1A/1B/1C unless the main lube oil or shaft driven gear lube oil pump had already failed. A failure of the main lube oil or shaft driven gear lube oil pump to operate would cause the associated makeup pump, MUP-1A/1B/1C to be considered inoperable (even if the backup pumps are functional). However, the inoperative pump is a failure of a redundant component or a single failure if the pump is one of the active components in the two required makeup/HPI trains until the remaining redundant pump could be aligned in accordance with licensing requirements. Therefore, the change in classification of the lube oil backup pumps will not increase the consequences of a malfunction of the makeup pumps or the makeup pump's lube oil system previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The backup lube oil pump classification change only affects the makeup/HPI pumps and does not introduce any new fluid, electrical, control or instrument interfaces. The failure of a makeup/HPI pump has been evaluated in Chapter 14 of the FSAR as a single failure to the ECCS. Therefore, the backup lube oil pump classification change cannot create the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The backup lube oil pump classification change only affects the makeup/HPI pumps and does not introduce any new fluid, electrical, control or instrument interfaces.

For the design basis event of an Appendix R fire, one makeup pump is considered to be out of service for maintenance and the fire renders one of the two remaining makeup pumps inoperable. This leaves one makeup pump available for safe shutdown. The power to the associated main lube oil or backup lube oil pump must not be rendered inoperable due to the fire. Therefore, the circuits for either the backup or main lube oil pumps must be fire protected. The circuits for the backup lube oil pumps were selected for fire protection over the mainlube oil pumps since they were the shortest or the main lube oil pump's power source was involved in the fire and not available. The integral gear lube oil pump does not require fire protection and the backup gear lube oil pump is not required for pump operation since failures unrelated to the fire of equipment (integral gear lube oil pump) are not postulated. However, the backup gear lube oil pump circuits

are presently fire protected. The backup lube oil pumps are non-safety related but the use of non-safety related equipment to achieve safe shutdown is allowed per 10CFR50 Appendix R, III.L.6. The classification change does not affect the backup lube oil pumps use as a primary lube oil pump during a fire event.

The failure of a makeup/HPI pump has been evaluated in Chapter 14 of the FSAR as a single failure to the ECCS.

Therefore, the backup lube oil pump classification change does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The makeup/HPI pump's lube oil system is not specifically discussed in the ITS or the ITS bases but the makeup pumps which the lube oil system supports are discussed. Therefore, if each makeup pump's lube oil system does not degrade the performance of the associated makeup pump or the availability of the makeup pump, the performance of the HPI system is not affected by the classification change of the backup lube oil pumps. Since the classification change to the backup lube oil pumps does not change the availability or performance of the makeup/HPI pumps, the margin of safety remains unchanged as defined in the ITS or ITS bases.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Deficiency Report PC97-1502 (and Calculation E89-0065)

Description

This Unreviewed Safety Question Determination (USQD) has been prepared to evaluate a "Use-As-Is" disposition of a Deficiency Report, PC97-1502. The "Use As- Is" disposition will permanently change the Emergency Feedwater (EFW) System design to document that the maximum motor load is 880 HP and that the existing motor rated for 800HP with a service factor of 1.0- can support this loading.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The design change to document the load of 880 hp on the motor for EFP-1 is acceptable based on Revision 3 of calculation E-89-0065 that provides an operability and aging analysis of the EFP-1 motor. This calculation revision demonstrates that the motor is capable of performing its safety function to mitigate accidents. EFP-1 is not needed for normal plant operation and operates only for testing during normal plant operation and the conditions and concerns addressed in the calculation revision are not related to normal plant operation. None of the accidents evaluated in the FSAR are initiated by the emergency feedwater system operation or the failure of components with this system. Therefore, the design change resulting from the "Use-As-Is" disposition cannot increase the probably of occurrences of an accident.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Revision 3 of calculation E-89-0065 provides an operability and aging analysis which demonstrates that the EFP-1 motor is capable of performing its safety function to mitigate accidents. Therefore, the design change resulting from the "Use-As-Is" disposition cannot increase the consequences of and accident previously evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   Revision 3 of calculation E-89-0065 provides an operability and aging analysis to demonstrate the EFP-1 motor is capable of performing its safety function to mitigate accidents. However, the revised calculation recognizes that the motor will operate at a high mechanical load and a higher internal temperature than previously considered.

   One of the most significant stresses on a motor is the operating temperature of the motor stator. One of the most common failure modes for motors is "motor burnout" due to excessive stator temperature due to excessive mechanical loading. Thus operating of the motor with a stator winding temperature significantly high than the rated temperature for continuous duty would increase the probability ot motor failure (i.e. "motor burnout"), as compared to operation of the motor within its continuous duty rating. Therefore the design change resulting from the "Use-As-Is" disposition will increase the probably of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The design change resulting from the "Use-As-Is" disposition does not change the way the EFW system is operated or the way in which EFP-1 functions. Therefore the consequences of a failure of EFP-1 will not be changed.

In addition, there are no impacts on other equipment or systems not evaluated separately. Changes to the system flow rates and the impact on diesel generator loading have been evaluated on other USQDs. Further there is no adverse impact on cable ampacity or protective relaying.

Based on the above, the "Use-As-Is' disposition will not increase the consequences of the malfunction of equipment important to safety previously evaluated in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The design change resulting from the "Use-As-Is" disposition deals only with the capability of the EFP-1 motor to operate under worst case conditions. The operation of the plant is unaffected. Also, the EFW system only operates for testing during normal plant operation. Therefore, the design change cannot create the possibility of an accident of a different type than previously evaluated.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The function of EFP-1 has not changed, and the operation of the EFW system has not changed as a result of design change that results from the deficiency report disposition. Also, the loss of one Emergency Feedwater (EFW) train is considered in the FSAR and the malfunction of the motor for EFP-1 cannot affect the other EFW train. Revision 3 of calculation E-89-0065 only demonstrates the capability of the EFP-1 motor to perform its safety function under worst case design conditions. Therefore the design change resulting from the "Use-As-Is" disposition cannot create the possibility of a different type of malfunction of equipment than previously evaluated.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Revision 3 of calculation E-89-0065 has demonstrated that the motor can drive the load of the pump as assumed in the FSAR accident analysis for the worst case accident conditions. In addition, the design change resulting from the "Use-As-Is" disposition cannot reduce the margin of safety as defined in the Bases.

Attachment A
Sum. nary of Safety Evaluations

SA/USQD Subject: SP-182 "Reactor Building Structural Integrity Tendon Surveillance Program"

Description

The procedure (SP-182) for the tendon surveillance has been totally rewritten for the 6th surveillance period as follows:

- updated the reference section to include all references and supporting documents
- clarified the surveillance frequency based on Regulatory Guide 1.35
- added a statement that the procedure envelopes both Regulatory Guide 1.35 and ASME Section XI, Subsection IWL and ensured that it did
- identified the tendons selected for the 6th surveillance period
- included a general overview of the various phases of the surveillance activities
- added definitions required for a better understanding of the procedure
- included additional precautions
- replaced the step-by-step instructions (Section 4.0) with a reference to the vendors (Precision Surveillance Corporation) inspection manual
- clarified the reportability requirements and special report writing
- revised the enclosures for the tendons selected for the 6th surveillance period
- removed the enclosures that are duplicated by the vendors inspection manual

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The Tendon Surveillance Program is not related to the initiation of any SAR accident. The monitoring of tendon forces during an outage to validate the containment post-tensioning system structural integrity does not involve interaction with any other systems/components. As such, this periodic surveillance is not an accident related activity in terms of the operation of the plant. This is a five-year structural inspection of the containment tendon post-tensioning system. As shown in the comparison table in Section A, Revision 3 of Regulatory Guide 1.35 expanded on the various attributes contained in Revision 1. The previous version of SP-182 (Rev. 12) had already incorporated Regulatory Guide 1.35 Revision 3. Therefore, changes to the procedure cannot increase the probability of occurrence of an accident evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The performance of a tendon surveillance is a monitoring activity to validate the structural integrity of the containment post-tensioning system at a given point in time. No changes will be made to the procedure that will change the severity of a containment failure, either during or after tendon testing. Therefore, the consequences of an accident evaluated in the SAR (loss of coolant accident, main steam line break, and rod ejection accident) cannot increase. Tendon forces will be measured for sixteen (16) and compared to predicted values in accordance with Regulatory Guide 1.35 and Improved Technical Specification (ITS) Section 5.6.2.7. If any low values are found, adjacent tendons will be investigated and retensioned as required. The structural integrity of the containment will not be compromised at any time during the surveillance activities or as a result of the activities. The surveillance of the containment post-tensioning system only affects approximately 2% of the population of the tendons. Because this revision does not increase the number of tendons tested, it cannot reduce containment structural integrity during testing below the level in the existing surveillance test. As shown in the comparison table in Section A,

Revision 3 of Regulatory Guide 1.35 expanded on the various attributes contained in Revision 1. The previous version of SP-182 (Rev. 12) had already incorporated Regulatory Guide 1.35 Revision 3. Therefore, the consequences of accidents (e.g., radiation doses to the public and control room personnel) previously evaluated is not increased.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The revision to the procedure for the Tendon Surveillance Program will update the inspection period specific information and clarify various parts of the procedure. Additionally, the step-by-step instructions will be replaced with a reference to a detailed vendor inspection manual. All facets of the vendor inspection manual will comply with SP-182 thereby ensuring compliance with all Regulatory Guide 1.35 requirements. The number of tendons to be inspected and the methodology used to inspect them will not be changed by this revision. The inspection approach (applied stressing forces), contained in the vendor inspection manual, to determine the tendon forces will not impose more severe conditions on the tendons than the previous revision levels. The revised procedure will still meet all of the requirements outlined in the Regulatory Guide 1.35 as stated in the SAR and the Improved Technical Specifications (ITS). As shown in the comparison table in Section A, Revision 3 of Regulatory Guide 1.35 expanded on the various attributes contained in Revision 1. The previous version of SP-182 (Rev. 12) had already incorporated Regulatory Guide 1.35 Revision 3. Therefore, there is no increase in the probability of occurrence of a malfunction of equipment evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The consequences of a malfunction of equipment will not be increased due to the revision of the procedure for the Tendon Surveillance Program. The revision will update the procedure with inspection period specific information, clarify the procedure and reference the vendor's detailed inspection manual. These changes will not remove any requirements mandated by Regulatory Guide 1.35 (as stated in the SAR and Improved Technical Specification). As shown in the comparison table in Section A, Revision 3 of Regulatory Guide 1.35 expanded on the various attributes contained in Revision 1. The previous version of SP-182 (Rev. 12) had already incorporated Regulatory Guide 1.35 Revision 3. Since the inspection approach and testing criteria will not change, the assumed analysis parameters (i.e., leakage rates, etc.) are not affected. Additionally, the containment isolation components are not affected by this procedure revision.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The Tendon Surveillance Program involves the inspection of the post-tensioning system of the containment. The tendon inspection does not involve the addition or modification to any existing plant systems, particularly those involving the operation of the plant. As such, the structural inspection of the containment tendon system does not affect the operation of the plant itself. As shown in the comparison table in Section A, Revision 3 of Regulatory Guide 1.35 expanded on the various attributes contained in Revision 1. The previous version of SP-182 (Rev. 12) had already incorporated Regulatory Guide 1.35 Revision 3.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The SAR assumes that the structural integrity of the containment will be maintained. The failure of the containment itself or the post-tensioning system would be considered a new malfunction. These failures will not occur due to the revision of the procedure for the Tendon Surveillance Program. The changes to the procedure will not remove any of the inspection steps or change the acceptance criteria. As shown in the comparison table in Section A, Revision 3 of Regulatory Guide 1.35 expanded on the various attributes contained in Revision 1. The previous version of SP-182 (Rev. 12) had already incorporated Regulatory Guide 1.35 Revision 3. Therefore, there is no possibility of a different type of malfunction of equipment important to safety (except those previously evaluated by the SAR).

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting Design Basis Accident (DBA) without exceeding the design leakage rate. The allowable leakage rate is 0.25% of containment air weight per day. The DBAs that result in a challenge to the containment from high pressure and temperatures are a loss of coolant accident (LOCA), a steam line break, and a rod ejection accident (REA). In addition, release of significant fission product radioactivity within containment can occur from a LOCA or DBA. In the analyses of DBAs involving release of fission product radioactivity, it is assumed that the containment is operable so that the release to the environment is controlled by the rate of containment leakage.

The Tendon Surveillance Program does not affect any postulated accidents that could cause an increase in the pressure and temperatures within the containment. The inspection of the tendons will ensure that the post-tensioning system is capable of maintaining the required leakage rate. The revision to the procedure for the Tendon Surveillance program will not reduce or remove any requirements within the current (and previous) revision levels. All inspection requirements and acceptance criteria that are identified in Regulatory Guide 1.35 are captured in the procedure. As shown in the comparison table in Section A, Revision 3 of Regulatory Guide 1.35 expanded on the various attributes contained in Revision 1. The previous version of SP-182 (Rev. 12) had already incorporated Regulatory Guide 1.35 Revision 3. Therefore, the margin of safety for the containment is not reduced by the revision to the procedure (SP-182).

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: SP-320 "Operability Of Boron Injection Sources And Pumps)

Description

This change will eliminate the use of SFP-1B to recirculate the BWST. There will be no equipment changes to physically prevent this from occurring. There will be no procedure available to do it. Elimination of the option of using SFP-1B to recirculate the BWST will eliminate a possible failure scenario. If a LOCA occurs while SFP-1B is being used to recirculate the BWST, the ECCS pumps could possibly lose suction. This revision eliminates the possibility of this accident from occurring.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The change will have no effect on any accident analysis detailed in the FSAR. The failure of SFP-1B is not identified as a precursor or contributor to any current accident initiation sequence described in the FSAR. Therefore, any change to preclude such a failure due to loss of NPSH cannot increase the probability of occurrence of any accident previously analyzed in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   None of the accident analyses in the FSAR are affected by this proposed change. This change eliminates the possibility of failure of a ECCS pump due to potential NPSH deficiencies. No release paths will be affected by this change. Therefore, the change cannot increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previo[illegible]evaluated in the SAR? No.

   No new failure modes or inte[illegible]es are introduced by this proposed change. The proposed change actually eliminates the possibility of a failure of a safety related component (ECCS pumps) due to potential NPSH deficiencies. Thus, the change actually reduces the probability of a malfunction. Therefore, the change cannot increase the probability of malfunction.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   None of the accident analyses in the FSAR are affected by this proposed change. The FSAR accident analyses do not address the recirculation of the BWST with SFP-1B. This change eliminates the possibility of failure of a safety related component (ECCS pumps) due to potential NPSH deficiencies. Therefore, the change cannot increase the consequences of a malfunction of equipment important to safety previ[illegible]sly evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

   Deletion of this method of recirculating the BWST will have no affect on any possible accident scenario. No new interfaces are introduced or otherwise affected by the proposed changes The change simply eliminates the possibility of a failure of a ECCS component due to potential NPSH deficiencies. No failure of this component or its associated subsystem can contribute to the

initiation of an accident. Therefore, the change cannot create the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

Deletion of this method of recirculating the BWST will have no affect on any possible equipment malfunction. Alternate means of recirculating the BWST are available. No new failure modes or interfaces are introduced by the proposed change. The proposed change eliminates the possibility of a failure of a ECCS pump due to potential NPSH deficiencies. Thus, the change does not create the possibility of a different type or malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Deletion of this method of recirculating the BWST eliminates the possibly of a failure of an ECCS pump due to potential NPSH deficiencies. In doing so, it assures system performanc requirements associated with ECCS operation are maintained. Therefore, the change cannot reduce the margin of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: SP-341 "Monthly Containment Isolation Valve Operability Check)

Description

SP-341 provides a means to inspect equipment configuration that has been previously installed. SP-341 provides assurance through observation that components are in their required position to mitigate the design basis accidents of LOCA, MSLB and Rod Ejection.

ITS Amendment 156 authorizes Option B of 10CFR50 Appendix J. ANSI 58.8, 1994, is endorsed through Option B. This ANSI standard requires those test connection vent and drain valves, that are between valves and/or blind flanges, that are Appendix J tested, to be administratively secured closed. These changes do not modify the plant or install the equipment described below. It simply provides a means to inspect the equipment that has been previously installed.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   Increasing the administrative controls on the subject valves only provides for better assurance of proper valve position and compliance with ITS surveillance requirements. They do not in any way affect the assumptions or results of any current accident analysis. Therefore, the imposition of more stringent administrative controls on selected test connection vent and drain valves cannot increase the consequences of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Increasing the administrative controls on the subject valves only provides for better assurance of proper valve position and compliance with ITS surveillance requirements. They do not in any way affect the assumptions or results of any current accident analysis and result in any new failure modes or effects. Therefore, the imposition of more stringent administrative controls on selected test connection vent and drain valves cannot increase the consequences of an accident previously evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   Increasing the administrative controls on the subject valves only provides for better assurance of proper valve position and compliance with ITS surveillance requirements. No new failure modes are created by the administrative changes and existing failure modes, if any, remain unchanged. Therefore, the imposition of more stringent administrative controls on selected test, vent and drain connections cannot increase the probability of a malfunction of equipment important to safety previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   Increasing the administrative controls on the subject valves only provides for better assurance of proper valve position and compliance with ITS surveillance requirements. They do not in any way affect the assumptions or results of any current accident analysis and result in any new failure modes or effects. Therefore, the imposition of more stringent administrative controls on selected

test connection vent and drain valves cannot increase the consequences of an accident previously evaluated in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

Increasing the administrative controls on the subject valves only provides for better assurance of proper valve position and compliance with ITS surveillance requirements. No new interfaces are created by the administrative changes and existing interfaces remain unchanged. This activity does not add any equipment to the plant and does not contact any equipment. Therefore, there is no possibility that this activity can affect any equipment that could cause an accident of different type than any previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The activity of this procedure is observing which is not intrusive to any plant equipment. Increasing the administrative controls on the subject valves only provides for better assurance of proper valve position and compliance with ITS surveillance requirements. No new failure modes are created by the administrative changes and existing failure modes, if any, remain unchanged. Therefore, the imposition of more stringent administrative controls on selected test vent and drain connections cannot create a new malfunction of equipment important to safety than previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Increasing the administrative controls on the subject valves only provides for better assurance of proper valve position and compliance with ITS surveillance requirements. They do not affect the design, operation, or maintenance of any plant equipment or any associated bases documentation. Therefore, the imposition of more stringent administrative controls on selected test connection vent and drain valves cannot reduce any margin of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 89-06-18-01 (CH and SW System Expansion Joint Replacement)

Description

Replace rubber expansion joints CHEJ-1,2,5,6,9 and 10 and SWEJ-14,15,16 and 17 with flexible rubber connectors (Soundzorber).

The rubber expansion joints are deteriorating by "ballooning" out of shape to the point the arch contacts the flange studs or hex nuts of the mating flanges causing the joints to be very susceptible to puncturing.

Safety Evaluation

1. Is the probability of an occurrence or the consequences of an accident or a malfunction of equipment important to safety, as previously evaluated in the FSAR increased? No.

   The proposed modification will ensure the reliability of the SW & CH System, thus ensuring the availability of the Control Complex Chillers during normal operation and during an ES actuation. The new flexible rubber connectors will meet and/or exceed all the applicable design requirements of the existing expansion joints and piping in the SW System to the chillers and the CH System. None of the SW/CH System operating parameters (i.e., flow, pressure, temperature, etc.) will be changed. Therefore, the probability of occurrence or the consequences of an accident previously evaluated will not be increased.

2. Is the possibility for an accident or malfunction of a different type than any previously evaluated in the FSAR created? No.

   Since no changes are being made to the overall configuration function, or operational characteristics of the SW/CH System or to the logic behind their operation, the proposed change will not give rise to any abnormal or unexpected operating condition. Additionally, since this modification repairs degraded expansion joints, availability of the chilled water system for normal and emergency operation will be ensured. Therefore, the proposed change will not create the possibility of a new type of accident or malfunction.

3. Is the margin of safety, as defined in the basis for any Technical Specification, reduced? No

   Technical Specifications 3/4.7.7, Control Complex Ventilation System, requires that each Control Room Emergency Ventilation System be demonstrated operable. The Control Complex Chillers & Pumps are required to ensure the sufficient cooling capacity is available for continued operation of the control room equipment. The replacement of the rubber expansion joints with a more reliable flexible rubber connector ensures the reliability of the CH System, and the margin of safety for Tech. Spec. 3/4.7.7 will not be reduced.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 89-06-23-01A (SWP Bearing Housing Seals)

Description

Change lip seals to mechanical seals on SW Pump bearing housings. to extend pump shaft life and reduce pump downtime.

Safety Evaluation

1. Is the probability of an occurrence or the consequences of an accident or a malfunction of equipment important to safety, as previously evaluated in the FSAR increased? No.

   Ref. FSAR Sect 9.5.2.1.2.k, A break is postulated in the 18" main header of the SW system. The Bearing Housing Seals are not in the pressure boundary part of the system. Ref. FSAR Sect. 9.5.2.1.2.f, Various components of the SW system are redundant, including the SW pumps. The new seals to be installed in the bearing housings are less likely to fail than the existing seals and, in fact, have been shown to have from 5 to 10 times the life expectancy of the existing seals. The new seals meet or exceed the requirements of the existing seals in preventing dirt and grit from entering the bearing housing and in preventing oil from leaking out. Because the mechanical seals have a better performance history and will enhance the life of the bearings and shaft, the reliability of the pump will be increased and the possibility of pump failure will be decreased. Should a pump fail for any reason, including loss of bearing housing seals, the FSAR requires a 100% capacity redundant pump. This requirement is met by either SWP-1A or SWP-1B. SWP-1C is the normal duty pump and is not required to operate in an emergency.

2. Is the possibility for an accident or malfunction of a different type than any previously evaluated in the FSAR created? No.

   Ref FSAR 9.5, The SW pumps will be fully capable of performing their required function with the new mechanical seals. From an equipment malfunction standpoint, the bearing seals are not pressure retaining and are not part of the pressure boundary. Loss of the bearing seals will not cause loss of the pressure boundary or of the pump integrity. The only malfunction which could occur due to a problem with the new seals would be bearing damage due to leakage of oil. In a most severe case this could lead to the loss of the pump's ability to operate. However, the loss of a pump has been previously evaluated and the system has been specifically designed with sufficient redundancy to ensure that a single failure may be tolerated. Thus, no new or different type of accident or malfunction than any previously analyzed have been created.

3. Is the margin of safety, as defined in the basis for any Technical Specification, reduced? No

   Tech Spec 3/4.7.3 specifies actions to be taken if one of the emergency pumps (SWP-1A or SWP-1B) becomes inoperable. The emergency pumps are required to be operable in modes 1,2,3 & 4. Should the bearing seals be replaced during modes 1, 2, 3 or 4 on the emergency pumps, the plant will have enter a 72 hour action item (i.e., with only one emergency pump operable, restore a minimum of two pumps to operable status within 72 hours or be in hot standby within 6 hours and in cold shutdown within the following 30 hours). Per the basis for the tech spec, 3/4.7.3 was established to ensure that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. As specified in the engineering instructions for this MAR, the seals will be installed in modes 5 or 6, unless the pumps are taken out of service to perform additional work. Therefore, since the mechanical seals will enhance the reliability of the SW pumps, ensuring their availability for cooling, and any work performed in modes 1-4 will be done in accordance with the limitations set forth within the Tech spec, the margin of safety established by the Tech Spec will be maintained.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 90-08-18-01 (Wire Mesh Over Pressurizer Heater Bundle)

Description

This modification will install stainless steel wire mesh covers on pressurizer heater bundle distribution panels 1 through 7 (Tag #s RCDP-1 through -7).

FPR #M89-007 documented the potential for plant personnel to be injured by coming in contact with exposed electrical conductors in distribution panels RCDP-1 through -7. The resolution to the FPR recommended installing wire mesh covers over the open panels. This modification is generated to enact the proposed resolution.

Safety Evaluation

1. Is the probability of an occurrence or the consequences of an accident or a malfunction of equipment important to safety, as previously evaluated in the FSAR increased? No.

   The wire mesh covers are mounted on nonsafety related distribution panels Tag # RCDP-1 through -7. The covers prevent foreign objects from contacting energized electrical conductors and, because of their open mesh design, allow radiant heat to escape from the panel interiors. The screens do not perform any electrical or mechanical function related to the system's design. They are seismically designed and mounted to prevent them from falling against or damaging any adjacent plant equipment. The screens do not increase the probability of an accident or malfunction of equipment important to safety as previously evaluated in the FSAR.

2. Is the possibility for an accident or malfunction of a different type than any previously evaluated in the FSAR created? No.

   The wire mesh screens act as a structural barrier only over the distribution panel boxes. They are similar in form, fit and function to the solid steel sheet covers which were originally installed on the panels. They have the added advantage over the old panel covers of allowing heat to escape the interior of the panel.

3. Is the margin of safety, as defined in the basis for any Technical Specification, reduced? No.

   The wire mesh panel covers are not required in order for electrical panels RCDP-1 through -7 to perform their function as defined in Technical Specification Section 4.4.4.1 and 4.4.4.2, page 3/4, 4-5. The screens will be designed to resist anticipated seismic forces to ensure they will not become dislodged and possibly damage adjacent plant equipment.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 91-07-13-02 (RECALL/SPDS REPLACEMENT)

Description

This Mar is for the replacement of the RECALL/SPDS system. The replacement system is a redundant microprocessor based system connected by a redundant local area network (LAN). The analog and digital field input signals are delivered to RECALL/SPDS by GRX-8800 multiplexers.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   Sections 7.3, 7.4.8 and 14 of the FSAR were reviewed for design basis accidents and/or malfunctions involving RECALL/SPDS. The FSAR section does not address the requirement for RECALL/SPDS for the design basis accidents or malfunctions. RECALL/SPDS is a non-safety related system intended to assist the control room personnel in evaluation of the safety status of the plant. Information provided by this system is duplicated on hard wire instruments on the main control board for Reg. Guide 1.97.

   Therefore this modification will not increase the probability of occurrences of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The RECALL/SPDS system will be used to display plant perimeters only and provides no control of plant equipment. Thus, the system has no influence on a release to the environment. Sections 7.3, 7.8.3 and 14 of the FSAR were reviewed and no reference is made to this system. therefore this modification will not increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The RECALL/SPDS is non-safety related with no interface with safety related equipment. So, a malfunction of the RECALL/SPDS will not increase the probability of an occurrence of a malfunction of equipment important to safety.

   I&C maintenance will monitor the temperature of the cabinets for a month following the installation of Phases 1 and 2. If the cabinets overheat, FPC will complete a modification as part of this MAR. Overheating occurs if the ambient temperature of the cabinet exceeds 100° F.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The RECALL/SPDS will be used to display plant parameters only and provides no control of plant equipment.

   The new RECALL/SPDS is a redundant microprocessor based system with redundant displays on the main control board. the outage of the processors in the EFIC Room C are tied to a redundant LAN. The LAN connects to the SPDS computers installed in the rear of the main control board

which controls the displays on the main control board. The control room operator has the ability to switch the control room displays between computers upon failure of a computer, hub or LAN. An intelligent ethernet hub is provided on each on the LANs. The hubs control the input to the LAN from the RECALL/SPDS processor. The hub will block signals from a processor from being transmitted on the LAN if the signal is detected to be erroneous. A system equipment malfunction will have no influence on shutdown or a release to the environment.

Therefore the modification will not increase the consequences of a malefaction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

No. The new RECALL/SPDS is a replacement system for the existing RECALL/SPDS. The software developed for the new system will have the same input signal processing as the existing system. The displays developed for the new system will be the same displays as the existing system. The operator will request the displays from the function pushbutton panel that is available for the existing system and to be reused for the new system. The system does not provide automatic or manual actuation of equipment.

New displays that will be developed for the system will have the same human factors reviews as the existing displays and access to the displays by the control room operators will be the same as the existing displays.

Therefore, the proposed activity will not create the possibility of an accident of a different type than any previously evaluated in the FSAR

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

RECALL/SPDS will be installed in two phases. The first phase will install the new SPDS B and maintaining the existing RECALL/SPDS A equipment. The intent is to operate the new and existing system in parallel for a period of time for validation and verification of the hardware and software. Following the validation and verification period the RECALL/SPDS A will be installed and validation and verification provided for the hardware and software.

The RECALL/SPDS is provided with a verification and validation function to provide the mechanism to verify the integrity of the software. Two forms of verification and validation exist. The first form is performed automatically by executable critical modules of PICS. Each module computes a checksum/CRC value immediately upon activation. This value is verified against a database containing the correct current version and expected checksum/CRC. If a miscompare is detected, a message will be transmitted to the Alarm system. A module will not continue to execute with an incorrect version of checksum/CRC.

The checksum/CRC value is computed using utility software by the Nuclear Computer and Controls Specialists.

The second form of verification and validation is a manually invoked validation processor. The validation processor predefines tests case files to validate the proper operation of the calculation software.

Therefore this modification will not create the possibility of a different type of malefaction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The Technical Specification was reviewed for requirements for RECALL SPDS. RECALL SPDS is not a required system to maintain a margin of safety as identified in the Technical Specification.

Therefore this modification does not require the margin of safety as defined in the basis for any technical specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 91-07-13-04 (Multiplexer Upgrade)

Description

The Multiplexer Upgrade Mar 91-07-13-04 will be the addition of a second ARCNET card to each multiplexer chassis, and the addition of an ARCNET hub to the Remote, Local and Logic I/O cabinet set. Two passive hubs will be installed for the EDAS multiplexers. The addition of the ARCNET cards and hubs will provide a redundant communications link to the PICS local Area Network (LAN).

Also as part of MAR 91-07-13-04 a 16-bit processor card will be installed in each of the multiplexer chassis in place of the existing 8-bit processor card. The 16-bit processor card will convert raw field data signals into engineering units at the multiplexer in lieu of at the PICS processors. The processor card then transmits significant change data only in lieu of all data during a transmission cycle, except for a periodic refresh cycle, where all data is transmitted.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   Section 7 and 14 of the FSAR were reviewed for design basis accidents and/or malfunctions involving the plant computer. The FSAR section does not describe that the requirement for the plant computer are for design basis accidents or malfunctions. The plant computer is a non-safety related system intended to display, alarm and archive plant process parameters. The plant computer system does not provide automatic or manual actuation of equipment. Therefore, this modification will not increase the probability of occurrence of an accident previously evaluated in the FSAR.

   The PICS is a microprocessor based software system with Remote, Local, EDAS and Logic I/O multiplexers to access the non-1E analog and digital field input signals. Redundant PICS processors are provided for critical systems. Critical systems are those systems that are implemented on the existing plant computer. Data processing feature of the new system will duplicate the existing system. The output of the PICS processors will be transmitted on the PICS LAN.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The PICS system will be used to display, alarm and archive plant parameters and provides no control of plant equipment. Thus, the system has no influence on a release to the environment. Therefore, this modification will not increase the consequences of an accident previously evaluated in the FSAR.

   The PICS and PICS LAN (not including the multiplexers) is a redundant system. The common element of failure for the PICS is the multiplexers. The PICS and the multiplexers are non-1E and not identified in any accident scenario for the plant.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The PICS system is non-safety related with interfaces with safety related equipment for process signals. The interfaces are provided with isolation devices which have not been altered by this

modification. A malfunction of the PICS system will not increase the probability of an occurrence of a malfunction of equipment important to safety. So, a malfunction of the PICS will not increase the probability of an occurrence of a malfunction of equipment important to safety.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The PICS will be used to process, display, alarm and archive plant parameters and provides no control of plant equipment. Therefore, a system malfunction will have no influence on a plant shutdown or a release to the environment.

The PICS is a replacement system for the existing PPCS. It will perform the same process, display, alarm and archive of plant parameters as the existing system. The PICS interface to plant systems will remain the same as the PPCS interfaces. The critical systems identified for the PPCS which functions ar performed on redundant mini-computers are provided on redundant processors for the PICS system. One processor of a redundant set for the PICS is on-line with the other in hot standby which is the same as the mini-computers for PPCS which has one on-line and the other in hot standby.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The new PICS system is a replacement system for the existing PPCS. The software developed for the new system will have the same functions as the existing system. The displays and alarms developed for the new system will be the same as those for the existing system. The operator's console installed by MAR 91-07-13-02 will provide the primary man-machine interface to the PICS processors. Other workstations can perform the functions of the operator's console, provided the security requirements have been satisfied. The security allows only that selected personnel from accessing the system parameters. The system does not provide automatic or manual actuation of equipment.

Therefore, the proposed activity will not create the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The PICS will be installed in two phases. The first phase will install the new PICS B and maintain the existing Mod Comp computer A. The intent is to operate the new and existing system in parallel for a period of time for verification and validation of the hardware and software. Following the verification and validation period the PICS A will be installed and a verification and validation of the hardware and software completed. Therefore, this modification will not create the possibility of a different type of malfunctions of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The Technical Specification was reviewed for requirements for the PPCS. The PPCS is not a required system to maintain a margin of safety as identified in the Technical Specification. Therefore, this modification does not reduce the margin of safety as defined in the basis for any technical specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 91-08-18-01 (Change in 480 Volt Breaker Settings)

Description

The long-time amperage trip point setting of one 480 volt switchgear circuit breaker (MCC feeder circuit breaker) is being increased from 480 amperes to 600 amperes. This design change is being made to move the long-time amperage trip point setting of the circuit breaker above the maximum calculated steady state load that the MCC fed by the circuit breaker would experience in a Worst Case Design Basis Event.

The new long-time amperage trip point setting has been established at a value greater than the anticipated worst case load current due to motors operating at reduced voltage along with a worst case configuration of equipment operating. Fault current is several times larger than this worst case load current. Fault current through an MCC feeder circuit breaker cause both the long-time amperage element and the short-time element to react and to trip open the circuit breaker. The specific value of the long-time amperage trip point setting is inconsequential for a fault condition.

Thus increasing the long-time amperage trip point setting from 480 amperes to 600 amperes does not increase the probability of any previous failure modes and does not create any new failure modes.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   There are no accidents evaluated in the FSAR that are initiated by the action, or failure of, a 480 Volt Auxiliary System circuit breaker. Thus the design change to increase the setting of the circuit breaker cannot increase the probability of the occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The safety function of the circuit breaker is to maintain power to the motor control center during a design basis event to power other accident mitigation equipment. The evaluation of the change to the circuit breaker setting criteria has demonstrated that the MCC feeder circuit breaker will not trip open for the worst case design basis event loading. Since the MCC feeder circuit breaker has been demonstrated to be capable of performing its safety function there will be not change in the inputs or results of any existing accident analyses as the result of this change in criteria. Thus the change will not increase the consequences of an accident previously evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The safety function of the circuit breaker is to maintain power to the motor control center during a design basis event to power other accident migration equipment.

   The change to the long-time amperage trip point setting does not introduce any new failure modes. Similarly, the change to the long-time amperage trip point setting does not increase the probability of any of the previously existing failure modes. Thus the change to the setting of the circuit breaker long-time amperage trip point setting does not change the probability of malfunction of the MCC feeder circuit breaker.

The evaluation of the change to the circuit breaker rating criteria has demonstrated that the MCC feeder circuit breaker will not trip open for the worst case design basis event loading. Thus the circuit breaker is capable of performing its safety function and electrical power will be supplied to the devices fed from the motor control center. Thus there will be no affect on other devices as a result of the change in the circuit breaker long-time amperage trip point setting.

Also, there is no change to the short-time amperage trip point setting or the short-time delay setting. Thus there is no change in the protection of equipment and cables against faults and the MCC feeder cable will continue to be protected for the emergency rating of the cable.

Therefore the change to increase the circuit breaker trip setting will not increase the overall probability of the occurrence of a malfunction of equipment important to safety previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The change in the circuit breaker trip setting does not change the failure modes of the circuit breaker. If the circuit breaker overcurrent trip device malfunctions by spuriously tripping, the consequences are the same regardless of the setting. Similarly, if the overcurrent trip device malfunctions by failing to trip when exposed to excessive current the consequences are the same regardless of the setting. Thus a change in the setting of the circuit breaker overcurrent devices does not increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The increase in the circuit breaker trip setting does not change the failure modes or failure probabilities of the circuit breaker. In addition, the spurious tripping of a circuit breaker feeding a motor control center during normal plant operation will not result in an accident of a different type than previously evaluated because the loss of power to a complete train of equipment has already been evaluated. The failure of a circuit breaker to trip in the event of a fault can, in the extreme, result in a fire and fires are an event previously evaluated. Therefore, the change to increase the circuit breaker trip setting cannot create the possibility of an accident of a different type than any previously evaluated in the SAR

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

There is no change in failure modes. No new or different equipment is being added to the plant and the various credible malfunctions of circuit breaker trip devices are implicitly evaluated in the SAR by the consideration of electrical system failures. Therefore the change to increase the trip setting of the circuit breaker will not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The Bases for the Improved Technical Specifications do not mention 480 volt circuit breaker settings nor do they imply any specific margin of safety or operating margin regarding these circuit breaker settings. The normal operating margin would be that which results from normal industrial practice. The normal practice is to set the overcurrent trip devices to about 115% of the maximum expected load current.

This design change increases the circuit breaker setting to provide a setting that is greater than 115% of the maximum expected load current, thus increasing the operating margin. Therefore this change does not reduce the margin of safety intended by the design basis of the plant.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 92-05-01-01 A (Repair of Misc. Pipe Supports)

Description

This modification will modify existing safety related pipe hangers by changing out and/or supplementing the existing anchor mechanism or support configuration to be in compliance with the CR-3 Pipe Support Design Guide.

Safety Evaluation

1. Is the probability of an occurrence or the consequences of an accident or a malfunction of equipment important to safety, as previously evaluated in the FSAR increased? No.

   This modification will change out and/or supplement the existing anchor mechanism or support configuration to increase the load bearing capability of the support. This will increase the factor of safety of the applicable support. Seismic adequacy in accordance with FSAR Sections 5.1, 5.2 and 5.4.

2. Is the possibility for an accident or malfunction of a different type than any previously evaluated in the FSAR created? No.

   No new accident scenarios will be created since this modification basically "enhances" the structural capability of the pipe support. This modification does not interact with any existing plant system previously identified.

3. Is the margin of safety, as defined in the basis for any Technical Specification, reduced? No

   No Tech. Spec. margins of safety have been reduced since this modification supplies additional structural hardware, thereby increasing the associated supports structural integrity. While no specific Tech. Spec. Sections addresses pipe supports, the operability requirements of Section 1.6 have been maintained.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 92-12-02-01 (DHV-11 and DHV-12 Spring Pack Modification)

Description

This MAR is installing heavier duty spring packs into DHV-11 and DHV-12. The heavier duty spring packs will allow more thrust to be delivered by the valve operators to the valves to ensure the valves operate under worst-case conditions.

Safety Evaluation

1. Is the probability of an occurrence or the consequences of an accident or a malfunction of equipment important to safety, as previously evaluated in the FSAR increased? No.

   This modification is installing heavier duty spring pack assemblies into DHV-11 ad DHV-12. The heavier duty spring pack assemblies will allow more thrust to be delivered by the DHV-11 and DHV-12 motor operators to the valves. Additional trust will help ensure DHV-11 and DHV-12 will operate under design basis conditions. DHV-11 and DHV-12 provide a flow path from the DH pumps to the MU pumps. These valves are required to be operable following a small break LOCA to enable the DH system to provide sump inventory to the MU system for HPI (piggyback mode of operation). The contents of the FSAR concerning DHV-11 and DHV-12 will not be impacted.

2. Is the possibility for an accident or malfunction of a different type than any previously evaluated in the FSAR created? No.

   The function of DHV-11 and DHV-12 is not being changed. Additional thrust provided by this MAR will help ensure DHV-11 and DHV-12 will operate under design basis conditions. Excessive thrust is not a concern due to current maintenance practices and available diagnostic equipment for properly setting the thrust output of the operators. No new safety concern will be created by this modification.

3. Is the margin of safety, as defined in the basis for any Technical Specification, reduced? No

   This modification is only enhancing the performance of DHV-11 and DHV-12. No change in function or purpose is being made to DHV-11 and DHV-12. Technical Specifications will not be impacted.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 95-09-04-C1 (BWST Level Indication)

Description

The existing BWST level indicators provide BWST level indication over the entire tank level, as required per Regulatory Guide 1.97. The associated instrument loop errors associated with the existing indicators are large enough to create an operator burden when maintaining the BWST level within ITS level limits. This modification will add two BWST narrow range level instrument strings. The intent of the new instruments is to provide operators with BWST level information which contains a very small instrument error. Maintaining the BWST level within ITS level limits will not cause a burden due to the small instrument errors associated with the narrow range level instrument strings.

The instrument strings can be powered from EGDG-A and EGDG-B and thus will increase the load to the emergency diesel generators. The assumed load to the generators, as stated in the FSAR, is impacted and a 10CFR50.59 review is required. A review of this modification has been performed in accordance with 10CFR50.59 and has been deemed not to involve an unreviewed safety question as follows:

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The modification has calculated the total load that can be added to EGDG-A and EGDG-B by the new instrumentation circuits. The modification activities included performing an electrical calculation review, and an EDG review which determined the small additional load added to each generator will have no adverse impact to the existing loads connected to the generator. Thus the probability of occurrence of an accident previously evaluated in the FSAR is not increased.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   This modification interfaces with safety related equipment. Two transmitters will interface with the existing BWST instrument level tubing. The transmitters' working pressure is rated far in excess of system pressure. The transmitters will be pressure tested and certified to the working pressure by the manufacturer. Thus the transmitters will not degrade the existing instrument tubing or associated BWST piping.

   The instrument strings are powered from the non-safety NNI power supply system. Each instrument string will be fused to prevent degrading the NNI's DC and AC power subsystem. Therefore the new instrumentation will not degrade existing plant systems. Thus the consequences of an accident previously evaluated in the FSAR will not be increased.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The modification has fused the instrument strings to protect the non-safety NNI power supply system. The modification installs transmitters with a working pressure far in excess of maximum system pressure. Thus the modification will not degrade existing systems and there will be no adverse impact to existing plant equipment. Thus the probability of occurrence or malfunction of equipment previously evaluated in the FSAR will not be increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No

The new instrumentation does not protect or control any equipment which may mitigate accidents as described in the FSAR. The instrumentation is not required to function during, or after an accident. The information provided by the instrumentation is not used to direct operator action during or after an accident. Thus the consequences of a malfunction of equipment previously evaluated in the FSAR will not be increased.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The equipment installed in this modification is not used to mitigate any type of accidents. The instruments are used to provide a more accurate BWST inventory level measurement and to display this information to an operator. Thus the possibility of an accident of a different type than any previously evaluated in the FSAR will not be created.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

This modification does not alter any control or protection functions for existing plant equipment. Therefore there are no new accident scenarios that will affect the possibility for malfunction of equipment of a different type than previously evaluated in the FSAR. Additional information regarding the digital nature of the equipment is addressed in the Supplemental Guidance for 10CFR50.59 Evaluation of Digital Upgrades.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The new instrumentation provides BWST level indication with sufficient accuracy to ensure compliance with ITS 3.5.4.2.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 95-11-07-01 (Replace Off Gas Sampling System)

Description

This design change will replace the existing RC Off Gas Grab Sampling system. The Reactor Coolant Off Gas Grab sample is used by Chemistry to strip dissolved gases from the RCS to determine total gas and dissolved gas activity. This sampling system is part of the Chemical Addition and Liquid Sampling System as documented in EDBD Section 7/1. Per FSAR 9.2.2, this system is not required to function during an emergency condition; however, portions of the systems are required to be operational and intact to provide containment isolation upon an Engineered Safeguards (ES) actuation signal and be able to provide a path by which post accident samples may be taken. This sampling rig is not a part of the PASS and does not provide containment isolation and therefore is not required to function during an emergency.

The replacement unit is a complete assembly that facilitates usage and should provide better results.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The sampling rig is not credited in any accident scenario as an initiator or mitigator. There are no credible failure modes associated with this activity. The rig is isolated from the RCS when not in use and does not create any new system interfaces with the RCS system.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The sampling rig is isolated by an ES actuation signal and is not credited for any accident mitigation function as specified in the FSAR and is not part of the Post Accident Sampling system.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   There is no credible failures associated with this activity and the sampling rig is not part of any SSC important to safety, therefore, it cannot increase the probability of occurrence of a malfunction.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   There are no credible failures associated with this activity and since the sampling rig is not credited for mitigation of any accident previously evaluated, its failure cannot increase the consequences of a malfunction of equipment important to safety.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

   There are no credible failure modes of the sampling rig and no new interfaces with any SSC. Any internal pressure boundary failure can be quickly isolated and vented through the sample hoods exhaust and drain systems and any releases will be contained within the Aux. Building. Since any

pressure boundary failure can be quickly isolated, it does not represent a new or different type of accident.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The sampling rig does not have any credible failures. The pressure boundary of the RCS is maintained through upstream isolation valves, both automatic and manual. Any internal pressure boundary failure can be quickly isolated and vented through the sample hoods exhaust and drain systems and any releases will be contained within the Aux. Building. Since any pressure boundary failure can be quickly isolated, this does not represent a new or different type of equipment failure.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The sampling rig itself is not a part of ITS and is not part of the Post Accident Sampling system. The results generated from the sample taken from the sampling rig are in the ITS. No system parameters or setpoints are affected by this activity and the dissolved gas limits are not changed.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 96-01-05-01 (Mecatiss Installation)

Description

This modification installs Mecatiss fire barriers on conduits DPC14, DPC15 and DPC16 in Fire Area CC-108-108, and installs Mecatiss fire barriers on cable tray 643 and conduits AHC957, AHC958, CHF20, EFS56, RSF1, VBF1, VBF2 and junction box AH-324 in Fire Area CC-124-111 to provide compliance to 10CFR50 Appendix R, Section III.G.2. Each of these electrical raceways contain circuits that are essential to safe plant shutdown for a 10CFR50 Appendix R fire scenario.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The changes being implemented by this modification involve the installation of Mecatiss fire barrier protection on three conduits in Fire Area CC-108-108 and on one cable tray, seven conduits and a junction box in Fire Area CC-124-111. These raceways contain circuits essential to safe shutdown for the respective fire area, and the Mecatiss fire barrier installation is needed to provide compliance to the separation requirements of 10CFR50 Appendix R, Section III.G.2 as defined by FSAR Section 9.8.8. In order to accommodate the installation of the fire barriers this modification also reroutes some of the circuits due to (1) physical interferences prohibiting the installation of Mecatiss on the existing raceways, and (2) insufficient cable ampacity to accommodate the installation of Mecatiss on the existing raceways. The rerouted circuits are seismically supported and installed in accordance with electrical physical separation criteria. The installation of the fire barriers and the circuit reroutes do not change the electrical power source, control logic or process monitoring signals for any of the end devices that pertain to the cables in this raceways. Therefore, this modification has no impact on system design boundaries or parameters. FSAR Sections 8.2, 9.8 and 14.0 have been reviewed.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Electrical control logic, instrumentation signals and electrical motive power to end devices are not changed by rerouting circuits or installing fire barriers on electrical raceways. Therefore, equipment essential to mitigating the consequences of an accident and maintaining fission product barrier performance is not affected by this modification. FSAR Sections 8.2 and 14.0 have been reviewed.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The new circuits installed by this modification to accommodate the circuit rerouting are in compliance with the qualification requirements of IEEE 383-1974. The load calculations have been reviewed for the seismically qualified supports for raceways that are being protected with Mecatiss, and the supports have been upgraded as required to accommodate the additional weight from the Mecatiss fire barriers. The installation of the Mecatiss barriers requires derating the allowable ampacity for power cables that feed continuous electrical loads. The required amount of ampacity derating has been established by testing conducted by Underwriters Laboratories. The derating factors established by this testing have been applied to the specific power cables that are being protected by this modification. Each derated cable ampacity has either been determined to be sufficient to power the respective electrical load based on its existing routing, or the cable is

being rerouted by this modification to allow the use of less severe derating factors to provide the required ampacity. This ampacity derating evaluation is documented in Electrical Calculation E-96-0003. Based on the above, this modification does not increase the probability of occurrence or malfunction of equipment previously evaluated in the FSAR. FSAR Sections 5.1.2 and 8.2.2.12 have been reviewed.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The cable reroutes and the tray and conduit fire barriers installed by this modification have no impact on the existing electrical coordination of the circuit breakers and fusing for the respective cables. Any malfunction of these cables or fire barriers involved with this modification would, in a worst case scenario, result in isolating the circuit by activating the protective breaker or fuse. Safety functions would then be performed by the redundant circuits and components. Therefore, the consequences of malfunctioning equipment as a result of this modification are not increased. FSAR Section 8.2.2 has been reviewed.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The cable rerouting and the electrical raceway fire barriers installed by this modification do not add, delete or change any end devices associated with the cables. System control logic and plant parameters are not affected by this modification, and therefore, no new failure modes are created. FSAR Sections 8.2.2.11, 8.2.2.12 and 9.8.8 have been reviewed.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The Mecatiss fire barriers that are being installed on electrical raceways by this modification serve the function of protecting the raceway and respective safe shutdown cables in the event of an Appendix R fire. This is the first installation of the Mecatiss material at CR-3. The capability of the Mecatiss material to provide the required fire protection has been proven by extensive UL testing of the material on actual raceway/cable models, typical of CR-3 raceway installations, and subjecting them to worse case fire environments. In some cases the actual raceway configurations on which the Mecatiss will be installed differ from the tested configurations. For these cases, Fire Protection Engineering has performed evaluations correlating the actual configurations to the test models justifying the acceptability of the Mecatiss material to protect each portion of raceway being protected by this modification. These evaluations are documented in NS96-0017, "Fire Protection Evaluation for MARs 96-01-05-01 and 96-01-05-02." Based on the above, different types of malfunctions of equipment are not created by this modification. FSAR Sections 9.8.7.5 and 9.8.8 have been reviewed.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Electrical raceway fire barriers are not addressed in the bases for the Technical Specifications. Since no system logic or plant design parameters are affected by this modification, the margin of safety as defined in the basis for any Technical Specification is not reduced. Technical Specification Bases B3.3.18 and B3.8 have been reviewed.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 96-02-09-01 (Install Dixson Digital Indicators)

Description

This MAR installs 4 single narrow range Dixson digital indicators and replaces the existing International Instrument dual range meters with Dixson dual range indicators. The Dixson indicators being added (0-200 gpm range) are to resolve the issue of losing half of the narrow range indication during a loss of battery and resolving a separation concern. The dual indicators being added (0-200 and 0-500 gpm) to replace the existing dual range are being installed to eliminate the nonlinear scales, provide a digital readout and improve meter accuracy.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   HPI Injection Flow is involved in any SBLOCA. The flow instrumentation is used by the operators to monitor HPI flow to assure (1) that the HPI system is working properly in that it is providing a flow of borated water to the core and (2) that it is not operating above pump runout (540 gpm per pump indicated). Adding an additional low range instrument per HPI Injection Line and changing the existing indicators from analog to digital to increase their accuracy, does not increase the probability of the occurrence of the spectrum of SBLOCAs.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Adding an additional low range instrument per HPI Injection Line and changing the existing indicators from analog to digital to increase their accuracy does not change the consequences of the HPI Line Break accident as evaluated in the FSAR. It in fact enables the operator to better monitor the performance of the HPI system in cooling the core as it provides an additional string of low range instrumentation for each HPI Injection Line so that no electrical failure can take out the low range instrument on an injection line. Improved ability to monitor the performance of the HPI System in other accidents evaluated in the FSAR where it is required also means the consequences of those accidents are also not increased by this modification.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The installation of the new indicators and new instrument strings as safety related electrical equipment similar to the installation of the previous indicators and following all the design requirements for such strings (EQ, Seismic, Electrical Separation requirements, etc.) assures that the probability of occurrence of a malfunction of equipment previously evaluated in the FSAR will not be increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The malfunctions of equipment previously evaluated in the FSAR for SBLOCAs and HPI Line Breaks are found in tables 6-14 and 6-19 of the FSAR. The consequences of those malfunctions with the new digital indicators and the new low range HPI flow instrumentation are not increased, as they are bounded by the previous analysis and the digital indicators and new low range instruments strings will not change that analysis.

Attachment A
Summary of Safety Evaluations

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

Adding an additional low range instrument per HPI Injection Line and changing the existing indicators from analog to digital to increase their accuracy does not create a new accident. No new unanalyzed accident like a new type of line break or loss of major equipment is created or introduced by adding additional instrumentation or converting the existing analog instruments to digital.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

Adding an additional low range instrument string per HPI Injection Line and changing the existing indicators from analog to digital to increase their accuracy does not create a new malfunction. Two potential common mode failures were considered for the use of digital indicators for this modification: (1) Software introduced common mode failure which is addressed in the supplemental guidance for 10CFR50.59 Evaluation of Digital Upgrades; (2) Common mode failures induced by EMI/RFI Interference. Similar digital indicators were tested and are documented in Dixson Test Report 60643-96N. A similarity analysis will be performed prior to turnover (MAR Open Item #12) which will include a confirmatory on-site RFI test using CR-3 portable transceivers. Additionally, a specific certified EMI/RFI test report will be performed prior to MAR closure.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

This change does not reduce the margin of safety for a SBLOCA. In fact, by adding 4 narrow range instruments, it increases the margin of safety as defined in the basis for the Technical Specifications.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: Mar 96-06-02-01 (EFIC Control Module Replacement)

Description

The design activity modifies the existing Emergency Feedwater Initiation & Control (EFIC) system. Reference Vitro logic drawing 3801-1014 (detailed) and B&W logic drawing 1184731D (simplified). Specifically, this design activity will enhance the existing EFIC Control Module, level control function, for Steam Generator (SG) level control in the event of Loss Of Main feedwater related events. The objective of this design activity is to reduce operator burden due to deficiencies in the EFIC level control module.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The design activity addresses a specific portion of the EFIC automatic level control function. EFIC operates in response to loss of normal feedwater events, as well as, SBLOCA, SBO, and MSLB. The EFIC system does not initiate any FSAR accidents. Therefore, this change to the EFIC system cannot increase the probability of occurrence of accidents evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The design activity cannot affect EFW initiation and supply during an accident evaluated in the FSAR. The level control circuitry is not described in the FSAR. The only requirement is to provide the SG with a minimum of 550gpm (at a SG pressure of 1050psig) for a Loss Of Main Feedwater accident. Level Rate control is not a requirement; it is only an objective to minimize overcooling. Framatome Technologies, Incorporated analysis "EFIC/EFW Control Evaluation" (51-1266199) ensures these aspects are maintained. The design activity enhances existing Steam Generator level control by allowing EFIC to automatically control level to the desired limits, reducing operator interaction (existing manual control is maintained and remains unchanged). EFIC uses the selected level setpoints for controlling EFW flow to prevent excessive OTSG fill rates and RCS overcooling. The design activity does not affect the EFIC initiation or isolation and flow requirements are maintained. The SG level rate control function is not changed. The initiation, isolation, and control functions are contained within separate modules. There is no interaction between initiation, isolation, or level control functions assumed in the FSAR accident analysis. Hence, this design activity does not alter EFIC EFW initiation, control, and isolation functions and does not create any additional system interfaces that could affect other mitigating equipment. Because this cannot degrade the operation or performance of any equipment assumed for accident mitigation in the FSAR accident analysis, it cannot increase the consequences of any accident evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The subject design activity does not alter the ability of the EFIC and EFW systems to initiate and provide required EFW flows following an accident. The design activity only affects a portion of the level control circuitry and does not alter the initiation or isolation functions of EFIC. The EFIC system also remain the same as those previously defined. Since the previous and existing EFIC malfunctions remain unchanged as a result of the design activity, EFW operation and performance cannot be affected, and EFW will be supplied to the steam generators as assumed in the accident analyses. The design activity does not create new interfaces with other fluid systems.

Also, because the design activity does not affect EFW system operation or performance and because it does not interface with other fluid systems, it cannot increase the probability of a malfunction of equipment important to safety previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The design activity is limited to the signals for level control and do not affect the initiation or isolation functions of EFIC. The only malfunctions previously evaluated in the FSAR that could potentially be affected by this design activity are those which impact EFW level control. However, this design activity enhances the level control circuitry function by allowing EFIC to control steam generator level rate to minimize overcooling. The intent is to reduce operator interaction, but it does not eliminate it.

EFIC level and level rate control function is not changed. The initiation, isolation, and control functions are contained within separate modules. There is no interaction between initiation, isolation, or level rate control functions assumed in the FSAR accident analysis. Therefore, the design change cannot increase the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

With the design change activities described in Section A above, the EFIC system will continue to have the same interfaces with other plant systems. These include (1) the main steam system (through the ADVs), (2) the IE vital bus power which powers the EFIC cabinets, (3) the EFW system, and (4) the main steam and main feedwater isolation through the FOGG Logic. The Atmospheric Dump Valve (ADV) control circuitry is physically separated from the EFW level control circuitry and cannot be affected by this change. Electrical faults that could require power supply protection have been considered in the EFIC cabinet design and the planned change cannot further affect the power supply. The change to the EFIC level control function cannot initiate any accident because the EFIC level control function interfaces only with the EFW system and the EFW system is isolated from the steam generators by check valves until required for accident mitigation. The FOGG logic initiation and isolation functions are contained within separate modules from the level control circuitry and cannot be affected by this change. Because the planned change to the EFIC level control function cannot affect the Main Steam System, the EFIC power supply, EFW initiation or FOGG Logic, and cannot affect the steam generator feedwater supply until actuated for accident mitigation, it cannot initiate any accident. Therefore, this change o the EFIC system cannot create an accident of a different type than previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The failure modes for the design activity are the same as those prior to the change. The revised level control function does not create any new system interfaces or failure modes that could introduce malfunctions of equipment of a different type as discussed in Section A. Because the design activity does not introduce different interfaces or failure modes, it cannot create the possibility of a malfunction of equipment important to safety of a different type than previously evaluated.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Specific margins of safety are not quantified in the basis for the improved Technical Specifications (ITS) applicable to the emergency feedwater system. However, certain acceptance limits are quantified in the ITS and FSAR for key parameters to ensure EFW post-DBA heat removal functions are satisfied. The EFIC system level control functions will not be changed by this design activity. The design activity will enhance the level control function by allowing a "quicker" response to the control valves. In addition the EFIC functions in response to plant transients will not be affected by the design activity. The required EFW flow assumed in the FSAR accident analyses will be maintained by the design activity, therefore, there is no affect on existing acceptance limits or reduction in the margin of safety associated with the EFW system as defined in the basis for any improved Technical Specification. Framatome Technologies, Incorporated analysis "EFIC/EFW Control Evaluation" (51-1266199) ensures the design activity does not change the flow requirement.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 96-07-13-01 (Replace MU Valve Controllers)

Description

This modification is in response to REA 95-0108 which requested that MU-15/25-POC and MU-15/25 /P (MUV-16/31 valve controls) be replaced as they are obsolete, parts are no longer available, and only one repair kit for MU-16/31-POC remains in stock.

On loss of NNI-X 118VAC power, the old Bailey E/P controliers continued to operate "sluggishly"; thereby allowing slow positioning of the valves from the control board. However, the new Moore Industries E/I being purchased to replace the Bailey E/P will not operate with power removed. Therefore, an additional power source is being added that is independent of NNI-X 118VAC power supplies. This new power source will be supplied via a new, "break before make", relay being added to each of the instrument power strings. The relay will be energized by NNI-X 118VAC. The NNI-X 118 VAC power will be wired across a set of normally open contacts while the new 118VAC power source will be wired across a set of normally closed contacts. On loss of the NNI-X 118VAC power, the relay will change state and the backup 118VAC power supply will feed the control instruments.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   Failure of either and device, i.e., MUV-16 or MUV-31, has been previously identified and analyzed as credible operational transients. However, the malfunction of the RCS makeup or RCP seal injection control valves is not credited as either a precursor or contributor to the initiation of any Design Basis Accident described in the FSAR. Therefore, the modification cannot increase the probability of occurrence of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Neither of these valves are containment isolation valves. They are system control valves. The instruments are not a part of the control valves "pressure boundary" and will not contribute to RCS or contaminated water leakage. These control valves are not required as part of any accident mitigation strategy. System/component operational functions remain unaffected such that these modifications will have no impact on any accident analysis. Therefore, this modification cannot increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   Reliability of the control valves will be increased with the replacement of the, older, obsolete instruments and the addition of the ability to power the instruments from a third power source. The new instruments are common to the industry, will have the same control characteristics as the old instruments and will not introduce any new flow/pressure changes into the systems being operated. Both valves will still fail to mid point on the loss of -10 to +10 control signal. Both valves will still revert to manual control on the loss of NNI-X 24VDC power. Both valves will still revert to manual control and be operable on loss of NNI-X 118VAC power. Reliability of the new relays and the method of actuation (contacts change to the backup power when relay coil is lost) negates the failure modes of the coil. A malfunction would be detected within an operating shift via SP-300/301 logging of the status of the red indicating light across the relay contacts. The

"air lock" feature of the valves has not been changed by this modification. The system/component response to the loss of power, e.g., 24VDC or 118VAC, or loss of 10VDC control signal, or loss of air remains effectively unchanged. The new instruments, however, could not operate, albeit sluggishly, upon loss of 118VAC as did the original design. Therefore, a third power supply will be installed to provide backup in the unlikely event of a transfer switch failure. This new power supply would only be called upon to supply power after both the main power feed and primary backup have failed. It is a redundant backup supply whose failure could only affect operation in the event of multiple failures had already occurred. Thus, its failure under such circumstances is not considered credible. Therefore, this modification cannot increase the probability of the occurrence of a malfunction of equipment important to safety evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Neither of these valves are containment isolation valves. they are system control valves. The instruments are not apart of the control valves "pressure boundary" and will not contribute to RXS or contaminated water leakage. These control valves are not required as part of any accident mitigation strategy. No new credible failure modes are introduced by this modification. System/component operational functions remain unaffected such that these modifications will have no impact on any of the accident analyses. Therefore, this modification cannot increase the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

Failure of either MUV-16 or MUV-31 has been identified and analyzed as credible operational transients. However, the malfunction of the RCS makeup or the RCP seal injection control valves is not credited as a contributor or precursor to the initiation of any identified accident scenario. No new interfaces with safety related equipment or power sources were introduced by this modification. System/component operational functions remain unaffected. Therefore, this modification cannot create the possibility of an accident of a different type that any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

A difference in failure modes has been identified with the change out of the obsolete valve controllers for MUV-16 and MUV-31. The old Bailey E/P would continue to operate "sluggishly" following loss of NNI-X 118VAC power. However, the new Moore Industries E/I replacing it will completely fail to function on loss of 118VAC and the valve will go to a closed position. To guard against the complete loss of 118VAC power to the controllers, a third 118VAC power source which is not NNI-X 118VAC dependent will be wired into the control scheme, via relays, to assure the operation of the E/Is on loss of NNI-X 118VAC. The design of the new relay circuit negates any identified failure modes of the relay. This new power supply will only be called upon to supply power in the event both the main power feed and primary backup have failed. Thus, it is a redundant backup supply whose failure could only affect operation in the event of multiple failures having already occurred. The valves' operational characteristics will not be affected by this modification. Therefore, this modification cannot create a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The RCS Makeup and RCP Seal Injection capabilities are not addressed in the Improved Technical Specifications or its Bases nor are they specifically required for accident mitigation. However, during normal plant operation they are required to remain functional in the event of a loss of NNI-X power. This modification assures that these capabilities are maintained such that any safety margins that might be inferred by their operation continues to be satisfied.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR T96-07-16-01 (Addition Of CI System Thermal Relief Valves)

Description

This T-MAR will add thermal pressure relief valves CIV-279/280 to the CI system piping for AHHE-14A/14B. Without these valves, post-LOCA heat input to AHHE-14A/14B and the associated CI piping could expand the fluid in these components and overpressurize/rupture their pressure boundary. A permanent modification will be developed to replace this T-MAR at a later date.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The installation of relief valves in the CI piping within the Reactor Building will not increase the probability of occurrence of an accident previously evaluated in the FSAR. The CI system serves no safety-related function, other than providing a means of containment isolation after an accident. The valves will allow the CI system to relieve internal pressure which may build up following an event which causes isolation of the containment isolation valves (CIV-34, 35, 40 and 41). This will ensure the ability of the closed CI pipe to function as one of the two containment isolation boundaries.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The consequences of an accident previously evaluated in the FSAR are not increased. The CI piping within the RB is one of two containment isolation boundaries. The omission of the capability to relieve internal pressure from the piping could possibly result in the failure of one level of containment isolation. However, the installation of relief valves will protect the integrity of the pipe during scenarios where the internal pressure would have challenged the allowable pressure of the system. The slight amount of water (less than 30 gallons) released into containment during pressure relief is insignificant for RB flood level considerations.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The probability of occurrence of malfunction of equipment previously evaluated in the FSAR is not increased. The installation of relief valves protects the CI piping boundary from over-pressurization during a LOCA or any other scenario where the cavity cooling piping is isolated and subjected to elevated temperatures. If the system were to rupture during normal operation, CR-3 would be required to enter LCO 3.6.3 and isolate the affected train of the cavity cooling portion of the CI system within 4 hours. Normal operating conditions do not cause sufficient internal pressure rise in the isolated train of cavity cooling, as is evidenced by past operating experience. The only credible rupture scenarios could occur during operating periods above allowable RB temperature limits, which would require power reduction, or during a LOCA, which would not require entry into the LCO.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The consequences of malfunction of equipment previously evaluated in the FSAR are not increased. The CI system serves no safety related function other than to provide a containment

boundary in the event of an accident. The system contains two containment barriers, the containment isolation valves and the closed piping system itself (type III penetration). Prior to the installation of the relief valves, closure of the isolation valves coupled with an energy input to the system could result in an increase in the internal pressure of the CI system beyond allowable limits, resulting in only one remaining boundary. The installation of the relief valves protects the CI piping boundary, ensuring it will continue to function as a containment boundary, even after proper closure of the containment isolation valves.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The possibility of an accident of a different type than any previously evaluated in the FSAR is not created. The CI system serves no safety-related purpose, other than providing a means of containment isolation. The installation of relief valves ensure that the pipe boundary remains functional, even after an accident.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The possibility for malfunction of equipment of a different type than any previously evaluated in the FSAR has not been created. The FSAR requires two containment barriers for containment isolation, which allows the failure of one barrier without compromising containment integrity. The installation of relief valves actually reduces the possibility of malfunction, as the piping boundary is more likely to remain intact following an accident. Failure of a relief valve to reseat after opening is outside the CR-3 design basis. However, if such a failure occurred, the containment isolation valves would still ensure containment integrity.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The margin of safety, as defined in the basis for any Technical Specification, is not reduced. The installation of the relief valves protects the piping boundary, which is one of two containment barriers relied on for containment isolation, ensuring it remains intact following an accident. The margin of safety, as expressed in the exposure of unacceptable levels of off-site and control room doses, is not reduced, since boundary performance is enhanced.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 96-07-17-02 (Reg. Guide 1.97 Low Range HPI Flow Recording)

Description

The HPI System is designed to maintain core cooling for large break sizes and operates independently of, and in addition to, the LPI System. Automatic actuation of HPI is initiated by low RCS pressure and or high reactor building pressure. Initiation of the emergency operation provides the following actions:

a. The valves in the lines connecting the BWST to the HPI pump suction headers open.
b. The valve in each HPI line opens.
c. HPI pumps start.

This MAR adds flow recording capabilities for the low range HPI R.G. 1.97 Type A, Category 1 instrument strings to the Recall/SPDS computer.

This modification is required to satisfy the R.G. 1.97 display/recording requirements and to satisfy CR-3 licensing commitments. The parameter in question was originally identified as a R.G. 1.97 Type D, Category 2 variable. In 1989 and 1996 this parameter was identified as requiring upgrading to a Type A, Category 1 variable; however, recording capability was omitted from the upgrade. The implementation of this MAR will provide for the addition of Recall/SPDS computer inputs for safety related low range HPI flow loops MU-23-dPT9, MU-23-dPT10, MU-23-dPT11 and MU-23-dPT12 signals.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   Since this passive recording function is provided only to document historical flow data and provide trending capability for the low range HPI System, any failure associated with this recording function will not be an accident initiator and, therefore, will not increase the probability of the occurrence of an accident as previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Since this passive recording function is provided only to document historical flow data and provide trending capability for the low range HPI System and is not utilized for any accident mitigation/function, and since safety related indicators are provided for operator use to mitigate the consequences of any accident, the implementation of this modification will not increase the consequences of an accident. Adding recording of flow signals will not challenge any fission product barrier, therefore, this modification will not increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   All hardware associated with the implementation of this modification is consistent with existing equipment currently installed. In particular, the existing Foxboro isolators/signal conditioners used to provide separation of safety related and non-safety related portions of the loop are the same isolators currently used in other Foxboro safety related applications. Considering this consistency in hardware use and application, no new type of hardware failures will be generated due to the implementation of this modification. The additional probability of failure by adding

additional non-safety cables that interface with existing safety related equipment does not increase the probability of occurrence of a malfunction of equipment because the isolators used are existing equipment and have no failure modes that would expose the existing safety equipment to failure in the non-safety part of the circuit.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

This modification installs data retention and recording functions only. A failure associated with this passive, recording function will not impede the mitigation of any design basis accident condition previously analyzed. In addition, the recording function is designed to address single failures. Therefore, any failure that would be associated with equipment installed by this modification would be bounded by existing accident analysis. Since no safety related/important to safety functions will be effected due to the installation of this modification, there will be no increase in the consequences of a malfunction of equipment important to safety as previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

No new hardware failures or failure mechanisms will be generated due to the implementation of this modification. Since this function supports only data retention/recording and is not used for any accident mitigation function, a failure associated with this passive recording function will not initiate or create any challenge to a fission product barrier. The hardware and its application used by this modification is consistent with other similar installed equipment and meets all single failure design requirements. Therefore, the implementation of this modification will not create the possibility of an accident different from any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

No new hardware failures or failure mechanisms will be generated by the implementation of this modification. Safety-related isolation devices are used to assure electrical isolation is maintained between the existing safety-related low range HPI control circuitry and the added non-safety-related Recall/SPDS computer/recording portion of the loop. Any failure that would be associated with the equipment installed by this modification would be isolated from the existing safety related circuits by the signal isolation devices. Therefore, the implementation of this modification will not increase the possibility of a malfunction of equipment of a different type important to safety or any consequences associated with the equipment than was previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

No new hardware failures or failure mechanisms will be generated due to the implementation of this modification. Since there are no specific safety-related protective or accident mitigation functions associated with the data retention/recording capability implemented by this modification, and no specific operator accident mitigation responses are supported by this function, there are no impacts on accident mitigation capabilities. Since there is no credit taken for this data recording/retention capability for accident mitigation, there are no impacts on the safety analysis. Therefore, there is no impact on any associated "margin of safety" as defined in the bases of any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR W96-12-15-01 (Replace SW Solenoid Valve)

Description

REA96-0111 responded to precursor card 96-0174 which identified a "Operator Work Around" caused by the excessively slow closure time of SWV-277. The proposed fix was to replace the installed solenoid valve having a Cv of 0.75 with one that has a Cv of 1.2. This was discussed with ASCO who recommended using a Model #EFHT8316G54 which has a Cv of 3 and piping the Solenoid directly to the cylinder. CWGR W96-12-15-01 implements the ASCO recommendations to resolve the "Operator Work Around."

The change in valve stroke time has no impact on SWV-277's valve body function as a pressure boundary, no new failure modes are created or existing failure frequency increased for any SSC Safety Function, therefore, the new relocated solenoid valve will not adversely effect any SSC Safety function.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   A postulated SW System failure/malfunction is not an initiator of any of the FSAR Chapter 14 Accidents. Therefore, changes to non-accident initiators cannot increase the probability of occurrence of an accident previously evaluated in the FSAR Chapter 14.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The manual function of adding demin. water to the SW Surge Tank to maintain inventory prior to the postulated accident occurrence is not changed by the proposed activity, therefore, the SW System capability to support accident mitigation is unchanged. Because the SW System Safety function capability is unchanged, accident consequences evaluated in the FSAR are also unchanged.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The manual function of adding demin. water to the SW Surge Tank to maintain inventory prior to the postulated accident occurrence is not changed and the failure frequency for each potential solenoid valve failure mode occurrence. Therefore, the failure frequency of the SW System as well as any SSC's safety function supporting accident mitigation are unchanged. Therefore, the probability of equipment malfunction previously evaluated in the FSAR is also unchanged.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The manual function of adding demin. water to the SW Surge Tank to maintain inventory prior to the postulated accident occurrence. Therefore, the SW System function supporting accident mitigation is unchanged. Because the SW System Safety function capability is unchanged, equipment malfunction consequences evaluated in the FSAR are also unchanged.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

A postulated SW System failure/malfunction is not an initiator of any of the FSAR Chapter 14 Accidents. The manual function of adding demin. water to the SW Surge Tank to maintain inventory is not changed. Therefore, the SW System normal and accident function capabilities are unchanged. Because the SW System capabilities are unchanged there is also no change to its potential to initiate an evaluated accident or one of a different type than previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The manual function of adding demin. water to the SW Surge Tank to maintain inventory prior to the postulated accident occurrence is not changed and no new failure modes effecting the safety function of any SSC. Therefore, the SW System as well as any SSC's safety function supporting accident mitigation are unchanged. Because SSC's Safety function capabilities are unchanged, the potential for equipment malfunction of a different type than evaluated in the FSAR are also unchanged.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Neither the ITS nor the ITS Basis documents address the function of adding make-up water to the SW Surge tank, therefore, the margin of safety is not reduced.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-01-03-01 (Removal Of Transfer Switch ESCP-1)

Description

This MAR removes manual transfer switch ESCP-1 and its associated supports.

Manual transfer switch ESCP-1 is a panel assembly consisting of four circuit breakers. The switch has two input power sources (Vital Bus Train A and B) and two output loads (ES Light Matrix Train A and B which are safety related per Reg Guide 1.97). Under normal conditions, the breakers are aligned to allow power flow from the input source to the respective output load. Upon power failure to one of the input power sources, the operator can elect to manually realign the breakers from normal position, to alternate position. The alternate breaker alignment provides a crosstie and allows the live power bus to feed power to the opposite train output load. The switch is located on the back wall of the control room. The switch is unique in design and is not duplicated within the plant.

The transfer switch was originally classified as non-safety, procured and installed as non-safety because the indicating light system was originally classified non-safety. The indicating light system and associated instrumentation were later reclassified to safety related per the requirements of Reg Guide 1.97. However, during the upgrade of the system, the transfer switch was not included and remained non-safety.

Furthermore, it was discovered that the transfer switch possesses the possibility of connecting both "A" and "B" Trains together through a single failure of one of the breakers, thus potentially losing both sets of ES indicating lights. This creates a common mode failure situation.

Therefore, the transfer switch is being removed to eliminate the common mode failure concerns and the possibility of losing both sets of indicating lights. There is no design basis need to maintain power to both safety trains of light in the event of a single failure. In addition, the ES indicating light system will now meet the requirements of Reg Guide 1.97.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The removal of manual transfer switch ESCP-1 causes no new interfaces with fluid systems or automatic actuation circuitry. ESCP-1 is a non-safety related component which is being removed to maintain the integrity of the safety related, per Reg Guide 1.97, ES indicating light system. Therefore, the proposed activity could not increase the probability of occurrence of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   No new interfaces with fission barriers or mitigation equipment have been created by the removal of ESCP-1. The capability to respond to design basis accidents has not been diminished. ESCP-1 only allowed the capability to power one train of ES indicating lights from an alternate train power source. There are no Technical Specification or FSAR requirements for having ESCP-1 and no requirement for having redundant power supplies for the ES indicating lights. The potential loss of a set of ES indicating lights has been considered as part of their associated system/component design where required or desired. Therefore, the consequences of an accident previously evaluated in the FSAR could not be increased.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

ESCP-1 was originally classified as non-safety, procured and installed as non-safety because the indicating light system was originally classified non-safety. The indicating light system and the associated instrumentation were later reclassified to safety related per the requirements of Reg Guide 1.97. However, during the upgrade of the system, the transfer switch was not included and remained non-safety.

Furthermore, while reviewing the design of the transfer switch, it was discovered that it did not meet CR-3 Electrical Design Criteria in terms of Separation and Isolation requirements. The transfer switch possesses the possibility of tying both "A" and "B" Trains together through a single failure of one of the breakers, thus potentially losing both sets of ES indicating lights.

There are no Technical Specification or FSAR requirements for having ESCP-1 and no requirement for having redundant power supplies for the ES indicating lights. Therefore, the transfer switch is being removed to eliminate the electrical separation/isolation concerns and the possibility of losing both sets of indicating lights.

The ES indicating lights will now be powered through their dedicated Vital Bus with no longer any interface with ESCP-1. If one set of indicating lights is lost, there is no method of re-powering them through the alternate power source without the transfer switch. However, the other set of indicating lights remain and there are other indication lights on the control board for the Operators to utilize. Removing ESCP-1 reduces the probability of an occurrence of a malfunction by eliminating the possible power train crosstie. Therefore, there is no increase in the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The ES indicating lights will now be powered through their dedicated Vital Bus with no longer any interface with ESCP-1. If one set of indicating lights is lost, there is no method of re-powering them through the alternate power source without the transfer switch. However, the redundant indicating lights in the opposite train would be available to fulfill the required safety function.

The modification creates no new failure modes or new interfaces with components or systems whose malfunction could contribute to a radiological release. The replacement of ESCP-1 reduces the consequences of a malfunction by maintaining separation of Reg Guide 1.97 indicators and their IE power sources which serve mitigating functions. Therefore, the proposed modification does not increase the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

No new interfaces with fission product barriers, RCS, MS/FW fluid systems, or automatic actuation circuitry, e.g., RPS, ESAS or EFIC, have been created by these modifications. This modification only removes manual transfer switch ESCP-1. The modification creates no new failure modes or new interfaces with components or systems whose malfunction could contribute to a radiological release. Although the loss of a set of ES indicating lights while in operation

could occur, it could not possibly result in the initiation of an accident of a new type. Therefore, the proposed activity could not create the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The ES indicating lights will now be powered through the dedicated Vital Bus with no longer any interface with ESCP-1. If one set of indicating lights is lost, there is no method of re-powering them through the alternate power source without the transfer switch. However, the other set of indicating lights remain and there are other indication lights on the control board for the Operators to utilize.

There are no Technical Specification or SAR requirements for having ESCP-1 and no requirement for having redundant power supplies for the ES indicating lights. Therefore, the transfer switch is being removed to eliminate the electrical separation/isolation concerns and the possibility of losing both sets of indicating lights.

The potential common mode failure mechanism from the failure of ESCP-1 for the ES system MCB indication has been removed improving ES system MCB reliability and further ensuring MCB indication availability when needed.

The loss of a set of indicating lights, as well as a loss of all indicating lights, is an analyzed event in the Technical Specification. The SAR does not address ESCP-1. In addition, there is no requirement for the ES indicating lights to have redundant power supplies. Therefore, this modification does not increase the possibility of a different type of malfunction of equipment important to safety than previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

There are no Technical Specification or SAR requirements for having ESCP-1 and no requirement for having redundant power supplies for the ES indicating lights. The loss of a set of indicating lights, as well as a loss of all indicating lights, is an analyzed event in the Technical Specification. Therefore, there is no reduction of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-01-05-01 (Reg. Guide 1.97 LPI Flow Recording by Plant Computer)

Description

The LPI System is designed to maintain core cooling for large break sizes and operates independently of, and in addition to, the HPI System. Automatic actuation of LPI is initiated by Low RCS pressure or high reactor building pressure. Initiation of the emergency operation provides the following actions:

a. The valves in the lines connecting the BWST to the LPI pump suction headers open.
b. The valve in each LPI line opens.
c. Decay heat removal pumps start.
d. Decay heat closed cycle cooling water pumps start.
e. Decay heat seawater pumps start.

The development of this MAR supports the addition of recording capabilities for the LPI R.G. 1.97 Type A, Category 1 instrument strings to the plant computer. R.G. 1.97 Type A variables are defined as those variables that provide primary information needed to permit the Control Room operator to take the specified manually controlled actions for which no automatic control is provided and that are required for safety systems to accomplish their safety function for design basis accident events. They are plant specific and were selected on the basis of the CR-3 Emergency Operating Procedures.

This modification is required to satisfy the R.G. 1.97 data retention/recording requirements and to satisfy CR-3 licensing commitments (see FPC to NRC Letter 3F0796-03). The parameter in question was originally identified as a R.G. 1.97 Type D, Category 2 variable. As a result of the CR-3 R.G. 1.97 Study, this parameter was identified as requiring upgrading to a type A, Category 1 variable. The implementation of this MAR will provide for the sparing of Recall/SPDS computer inputs for non-safety related LPI flow loops DH-001-DPT1 and DH-001-DPT2 and the replacement of these signals on Recall SPDS with signals from safety related LPI flow loops DH-1-FK3-1 and DH-1-FK4-1.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   This modification provides for the addition of flow recording capabilities to safety related LPI flow loops DH-1-FK3-1 and DH-1-FK4-1 and the removal of non-safety related LPI flow signals currently provided by DH-001-DPT1 an DH-001-DPT2. The flow signal generated by both the safety related loops and the non-safety related loops provide the same process information to the plant computer system. The replacement of the non-safety related signal with the safety related signal will provide a higher level of confidence that historical information will be available for trending and evaluation purposes following an accident, since the new signals will be generated by a safety related rather than by a non-safety related loop, and will satisfy the CR-3 licensing commitment for the recording capability of these R.G. 1.97 Type A, Category 1 variable.

   This flow recording capability is provided by the non-safety related Plant Integrated Computer System (PICS). In addition, safety related signal isolation is provided to isolate the safety related flow indication function from the non-safety computer provided data retention/trending capability provided by this modification. All associated physical design (conduit installation, etc.) has been developed in accordance with applicable Seismic II/I criteria. Since this passive recording function is provided only to document historical flow data and provide trending capability for the Decay Heat Removal System, any failure associated with this recording function will not be an accident initiator and, therefore, will not increase the probability of the occurrence of an accident as previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

This modification provides for the addition of flow recording capabilities to safety related LPI flow loops DH-1-FK3-1 and DH-1-FK4-1 and the removal of non-safety related LPI flow signals currently provided by DH-001-DPT1 an DH-001-DPT2. The flow signal generated by both the safety related loops and the non-safety related loops provide the same process information to the plant computer system. The replacement of the non-safety related signal with the safety related signal will provide a higher level of confidence that historical information will be available for trending and evaluation purposes following an accident, since the new signals will be generated by a safety related rather than by a non-safety related loop, and will satisfy the CR-3 licensing commitment for the recording capability of these R.G. 1.97 Type A, Category 1 variable.

This flow recording capability is provided by the non-safety related Plant Integrated Computer System (PICS). In addition, safety related signal isolation is provided to isolate the safety related flow indication function from the non-safety computer provided data retention/trending capability provided by this modification. All associated physical design (conduit installation, etc.) has been developed in accordance with applicable Seismic II/I criteria. Since this passive recording function is provided only to document historical flow data and provide trending capability for the Decay Heat Removal System and is not utilized for operator use to mitigate the consequences of any accident, the implementation of this modification will not increase the consequences of an accident.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

This modification provides for the implementation of flow recording capabilities for R.G. 1.97 Type A, Category 1 LPI for safety related loops DH-1-FK3-1 and DH-1-FK4-1. The implementation of this modification is consistent with existing plant designs and equipment. All hardware associated with the implementation of this modification is consistent with existing equipment currently installed. In particular, the isolators/signal conditioners utilized to provide separation of safety related and non-safety related portions of the loop are the same isolators currently utilized in other safety related applications. Based upon this consistency in hardware use and application, no new hardware failures or failure mechanisms will be generated due to the implementation of this modification. In addition to the single failure design of the Decay Heat Removal System and since this isolated non-safety related recording function supports data retention and recording capabilities only, the implementation of this modification will not increase the probability of occurrence of a malfunction of equipment important to safety and previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

This modification provides for the implementation of flow recording capabilities for R.G. 1.97 Type A, Category 1 LPI loops DH-1-FK3-1 and DH-1-FK4-1. The implementation of this modification is consistent with existing plant designs and equipment. No new hardware failures or failure mechanisms will be generated due to the implementation of this modification. The addition of the safety related isolators will prevent any failure associated with the non-safety-related plant computer system from impacting the performance of the safety related LPI flow loops. Since no safety related/important to safety functions will be impacted due to the installation of this modification there will be no increase in the consequences of a malfunction of equipment important to safety as previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

This modification provides for the implementation of flow recording capabilities for R.G. 1.97 Type A, Category 1 LPI for loops DH-1-FK3-1 and DH-1-FK4-1. The implementation of this modification is consistent with existing plant designs and equipment. No new hardware failures or failure mechanisms will be generated due to the implementation of this modification. Since this function supports only data retention and recording and is not utilized for any accident mitigation function, a failure associated with this passive, recording function will not initiate or create any challenge to a fission product barrier. The hardware and its application utilized by this modification is consistent with other similar installed equipment and meets all single failure design requirements.

The addition of the safety related isolators will prevent any failure associated with the non-safety-related plant computer system from impacting the performance of the safety related LPI flow loops. Since the non-safety related plant computer will be separated from the safety related LPI flow indication/control functions, no new failure modes, which have not been previously analyzed, will be created. Therefore, the implementation of this modification will not create the possibility of an accident different than the previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

This modification provides for the implementation of flow recording capabilities for R.G. 1.97 Type A, Category 1 LPI loops DH-1-FK3-1 and DH-1-FK4-1. The implementation of this modification is consistent with existing plant designs and equipment. No new hardware failures or failure mechanisms will be generated due to the implementation of this modification. Safety related isolation devices are utilized to ensure electrical isolation is maintained between the safety-related Decay Heat Removal control circuitry and the non-safety-related plant computer/recording portion of the loop. Since safety related electrical isolators are provided to isolate the passive, non-safety related plant computer recording function from the safety related LPI flow indication circuitry, the implementation of this modification will not create the possibility of a different type of malfunction of equipment important to safety than was previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

This modification provides for the implementation of flow recording capabilities for R.G. 1.97 Type A, Category 1 LPI for loops DH-1-FK3-1 and DH-1-FK4-1. The implementation of this modification is consistent with existing plant designs and equipment. No new hardware failures or failure mechanisms will be generated due to the implementation of this modification. Since this function supports data retention and recording capabilities only, any failure associated with this passive, recording function will not initiate or create an accident condition previously analyzed. Since there are no specific safety-related protective or accident mitigation functions associated with the data retention/recording capability implemented by this modification , and no specific operator accident mitigation responses are supported by this function, there are no impact on accident mitigation capabilities. Since there is no credit taken for this data recording/retention capability for accident mitigation, there are no impacts on the safety analysis. Therefore, there is no impact on any associated "margin of safety" as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-02-11-01 (Install Secondary Winding Protectors)

Description

The change being implemented by this activity is the installation of secondary winding protectors to protect current transformers (CT's) from damaging effects of high voltages that would result from an open circuited CT secondary circuit. Fire induced damage to CT circuitry is postulated to cause open circuit conditions for CT circuits. Therefore, in order to ensure electrical power is available to support safe shutdown in the event of 10CFR50 Appendix R design basis fire, essential CT circuits that are subject to fire damage are being modified to include CT secondary winding protection.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The changes to the electrical power distribution system that are being implemented by this modification only involve the mounting of CT secondary protectors on the control and instrument cabinets of electrical components (Diesel Generator Control Panels EGCP-1A and EGCP-1B, Unit 4.16kV Switchgear MTSW-2A/2B and Engineered Safeguards 4.16kV Switchgear MTSW-2C/2D/2E/2F) and connecting the secondary protectors in parallel with the CT windings. these electrical power distribution components support equipment that is used to maintain plant operating parameters within required design margins and envelopes. The installation of CT protectors will not degrade the reliability of the electrical power distribution system, but will actually enhance its reliability to support safety systems and equipment by precluding the damaging high voltage conditions that would result from an open circuited CT. The capability of the electrical power system to support safety systems is not reduced by this modification. A single failure of a secondary protector, in some instances, may result in tripping the respective power train with which it is associated. However, the unaffected train will remain operable. The worst case effect of a failed secondary protector would be loss of one diesel generator or loss of one of the offsite power sources to the 4kV ES Busses. The remaining diesel generator or offsite power source would be available to prevent a station blackout condition. A loss of both diesel generators and all offsite power sources would be necessary for a station blackout condition to occur. No other accidents as defined in FSAR Chapter 14, are affected by this modification. Therefore, the probability of occurrence of an accident previously evaluated in the FSAR is not increased.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The installation of the CT secondary protectors will not result in any change to the operation of the diesel generators or the control and operation of switchgear breakers. The capability of the electrical power distribution system to support safety systems and equipment that is essential for responding to design basis accidents will not be affected by these changes. The worst case effect on the diesel generators from a single failure of a secondary protector would be loss of a single diesel generator, leaving one diesel generator operable. Since the safety analysis assume that only one diesel generator is available, the consequences of an accident previously evaluated in the FSAR will not be increased.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The secondary protectors that are to be installed in safety related equipment by this modification will be located in areas classified as "mild" environment by the CR3 Environmental and Seismic Qualification Program Manual. The protectors are certified for mild environmental locations per the requirements of 10CFR50.49. The seismic integrity of the electrical cabinets in which they are located has been evaluated and documented in the Structural Design Input Record for this MAR. Separation of redundancy is ensured by locating each secondary protector in the same electrical cabinet or switchgear lineup that contains the specific CT that it is protecting. All wiring for this modification is accomplished by internal wiring changes. No field cables are installed or changed by this modification, therefore, cable separation is not impacted. Based on the above, the addition of the secondary protectors does not impact the qualification of existing equipment nor affect the electrical separation of redundant safety related equipment.

The impact of the failure of a secondary protector is evaluated based on considering the details of operation of the secondary protector and the effects of an open circuit, short circuit or ground condition that could result from a failed protector. The secondary protector is connected in parallel with the secondary winding of a CT. Under normal operating conditions the protector draws only a minimal leakage current from the CT (not enough to affect CT accuracy). In the event of an open circuit in the external CT wiring (such as fire induced damage to a CT circuit conductor) the normal metering or relaying burden will be removed from the CT secondary winding, and current flow through the secondary protector will be increased. As current continues to flow through the protector, the resulting heating within the protector will activate an internal thermostat switch which will short the CT secondary winding (safe condition). Once the thermostatic switch closes to short the CT secondary winding, the protector will start to cool. Eventually the thermostatic switch will open, and if the open circuit condition still exists, the cycle will simply repeat.

Based on the operation of the secondary protector, an open circuit failure within the protector will not be detected by the CT and the associated metering, protective relaying and power distribution equipment will function normally. However, a short circuit or ground failure within the protector would result in loss of the CT burden (metering and/or protective relaying).

A short circuit or ground failure of a secondary protector connected to CT's that are used for metering devices will have no impact on the continued operation of the respective electrical power distribution component because metering is only used for monitoring purposes and does not interlock with electrical distribution equipment. Except for diesel generator KW indication, the loss of metering will have no impact on the capability of the electrical distribution system to supply power to safety equipment. Diesel generator KW indication is essential to the operation of the diesel generations in order to ensure that the diesel does not operate above the allowable KW ratings or beyond the time limitations for certain KW ratings. Operation of the diesel generator beyond the permissive ratings or limitations could result in loss of the diesel. However, the failure of the secondary protector that causes loss of the diesel KW indication constitutes a single failure. Therefore, the remaining diesel is available to support the operation of safety systems and equipment.

A short circuit or ground failure of a secondary protector connected to CT's that are used for ground differential relaying will not activate the respective ground differential relay because the phase CT's used for ground differential relaying are connected in parallel resulting in a vector sum of zero current for each three phased input to the relay. Thus, the input to the ground

differential; relay will remain unchanged in the event of a shorted or grounded CT secondary protector and will not cause the relay to activate tripping the respective power source.

A short circuit or ground failure of a secondary protector connected to CT's that are used fro differential relaying will activate the respective differential relay as a result of the perceived unbalanced condition that is detected by the differential relay. The activation of the differential relay results in tripping the power source that the activated differential relay is monitoring. The worst case scenario of this occurrence is postulated to be a design basis accident concurrent with a LOOP, and the failed secondary protector occurring for the differential relaying of the "B" Train diesel generator. Since the secondary protectors are safety related components, the failed secondary protector constitutes the single failure of this scenario. However, the single failure of the secondary protector will only affect one of the safety related power trains, and the redundant train is then available to support the operation of safety systems and equipment.

Section 3.5 of NEI 96-07 indicates that modification which degrade the performance of safety systems below the design basis, or which increase challenges to Safety systems, constitute an increase the probability of a malfunction of equipment important to safety. The worst case effect of a failure of a secondary protector would be the loss of one of the safety related power trains. However, only one power train is assumed to function in the FSAR accident analysis, and the redundant power train would be available to support safety systems. Also, the loss of one power train due to a failed secondary protector does not affect the performance of the remaining power train, nor increase the challenges to the remaining power train. Therefore, based on the guidance provided by Item 3.5 of NEI 96-07, the probability of occurrence of malfunction of equipment previously evaluated in the FSAR is not increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The secondary protectors interface with the electrical power distribution system which provides power for the support of safety-related equipment used to control radiological release. The secondary protectors enhance the reliability of the electrical power system by ensuring the integrity of current transformers in the event of an open circuit condition on the CT secondary circuit. A single failure of a secondary protector could result in loss of one of the redundant safety related power trains. However, only one power train is assumed to function in the FSAR analysis, and the redundant power train will be available to support safety systems and equipment necessary to respond to a design basis accident. Therefore, the reliability of the electrical power distribution system to support safety-related equipment is not diminished by this modification, and the consequences of malfunction of equipment previously evaluated in the FSAR is not increased.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The CT secondary protectors to be installed by this modification only impact the AC electrical power distribution equipment. Electrical power is used to support safety systems and equipment needed to maintain plant integrity for all modes of plant operation. The worst case postulated failure of the AC electrical power system is the loss of all AC power (Station Blackout). This condition is evaluated in FSAR Section 14.1.2.9. the installation of the secondary protectors will not increase the likelihood of loss of all power since the CT secondary protectors serve to protect electrical equipment from an open condition on CT secondary windings. Based on the above, the reliability of the electrical support equipment affected by this modification is not degraded, and the possibility of an accident of a different type than previously evaluated in the FSAR is not created.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The response to Question 3 above details a worst case scenario in which a single failure of a secondary protector could result in the loss of one of the redundant safety related AC power systems. Loss of one redundant power train is within the plant design basis for single failure criteria. Even total loss of all AC power, which is beyond the postulated impact of this modification, is addressed in FSAR Section 14.1.2.9 (Station Blackout Accident). Consequently, the installation of the secondary protectors does not create the possibility for malfunction of equipment of a different type than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The installation of secondary protectors does not change the control logic of any electrical power distribution system components, does not change any relaying or breaker operating setpoints, and does not impact diesel generator loading. The AC electrical power sources are not changed in their capability to provide sufficient capability, redundancy and reliability to ensure the availability of the necessary power to ES systems to maintain plant parameters within their design limits. The worst case effect of a single failure of a secondary protector would be the loss of one diesel generator or the loss of one of the offsite power sources. Each of these conditions is addressed in the Improved Technical Specifications Section 3.8.1. Also, these conditions remain within the bounds of the FSAR analysis. Therefore, the margin of safety as defined in the basis for any Improved Technical Specification is not reduced.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-02-18-01 (DHV-3 and DHV-4 Cable Reroute)

Description

MAR 97-02-18-01 provides for the modification of circuits for DHB-3 and DHV-4. The MAR provides the separation of redundant trains to fully conform to Appendix R requirements for HI/LO Pressure Interface.

The change being implemented by this modification is the relocation of the power supply cables for DHV-3 and DHV-4 to comply with the separation requirements of 10CFR50, Appendix R.

The power cables for DHV-3 and DHV-4 are both currently routed in cable trays with energized cables and are susceptible to fire-induced three-phase hot shorts in the Intermediate Building and in portions of the Reactor Building. Since it is only necessary to prevent opening of one valve to maintain the pressure boundary, the power cable for DHV-3 and DHV-4 will be rerouted to meet the requirements of 10CFR50, Appendix R. In the Intermediate Building the cable for DHV-3 will be routed in conduit for protection. In the Reactor Building the cable for DHV-4 will be routed such that there is a radiant shield conduit protecting the cable in areas where there is less than 20 feet of separation between the cables for DHV-3 and DHV-4.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The changes to the power supply circuits that are being implemented by this modification only involve rerouting of the circuits to meet Appendix R separation criteria, and replacement of the EQ splices with an equivalent EQ connection. These changes do not affect the design or safety function of the end devices (DHV-3 and DHV-4). DHV-3 and DHV-4 are normally closed motor operated valves that provide redundant isolation of the dropline from the Reactor Coolant System hot leg. These valves are opened during normal cooldown to allow initiation of the Decay Heat (DH) System after the Reactor Coolant System pressure and temperature have been reduced. Fire induced spurious opening of these valves during power operation could result in a Loss of Coolant Accident (LOCA) by overpressurization of the DH system piping.

   Rerouting of the circuits will preclude simultaneous spurious operation of both valves during a design basis fire and therefore not increase the probability of occurrence of a LOCA. Replacement of the splices with EQ qualified quick disconnect connectors will have no adverse impact on the safety function of the valves and therefore will not increase the probability of occurrence of a LOCA.

   The addition of safety related conduit supports, conduit, cable, and quick disconnect connectors to these circuits, since they are designed for seismic and environmental effects, will not adversely impact the electrical distribution system nor increase the probability of a Station Blackout event.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   DHV-3 and DHV-4 are normally closed motor operated valves that provide redundant isolation of the dropline from the Reactor Coolant System hot leg. These valves are opened during normal cooldown to allow initiation of the Decay Heat (DH) System after the Reactor Coolant System pressure and temperature have been reduced. Fire induced spurious opening of these v

during power operation could result in a Loss of Coolant Accident (LOCA) by overpressurization of the DH system piping. Rerouting of the circuits will preclude simultaneous spurious operation of both valves during a design basis fire and therefore not increase the consequences of a LOCA. Replacement of the splices with EQ qualified quick disconnect connectors will have no adverse impact on the safety function of the valves and therefore will not increase the consequences of a LOCA. The operation of the DHV-3 and DHV-4 valves and the Decay Heat System in general is not changed by this modification, and the system will continue to function as designed for decay heat removal, low pressure injection, and mixing of borated coolant.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The new cable and quick disconnect connectors to be installed by this modification have been qualified for a harsh environment, and the conduit supports have been designed to applicable codes and for postulated seismic events. Cable and conduit routing is being upgraded to preclude the effects of a design basis fire. Since the cable and quick disconnect connectors are qualified per 10CFR50.49 criteria, a failed cable or connector is considered a single failure as defined by Criterion 21 of 10CFR50.34, General Design Criteria. Single failure criteria is not violated by the failure of a cable or quick disconnect connector. The qualification of existing essential equipment is not impacted, and the physical separation of redundant circuits is being improved; therefore, there is no increase in the probability of occurrence of a malfunction of equipment important to safety.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The circuit rerouting and splice replacement enhance the reliability of the redundant power supplies for DHV-3 and DHV-4 by ensuring a design basis fire does not affect both trains. A single failure of the cable or a quick disconnect could result in loss of power to one of the redundant safety related valves; however, since the modification does not affect the power supply design, the previous analysis for single failure remains the same for the valve safety functions. Therefore, the reliability of the power supplies to the equipment is not diminished by this modification, and the consequences of malfunction of equipment previously evaluated in the FSAR is not increased.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The worse case postulated failure for these circuits is that a design basis fire will cause three-phase hot shorts in both power cables, resulting in both valves spuriously opening during normal operation, which could result in a LOCA by overpressurization of the DH piping. This modification enhances the ability to prevent three-phase hot shorts from developing due to a design basis fire by routing cable in accordance with 10CFR50, Appendix R. The modification provides added protection by using existing fire barriers and by routing some cable in conduit to provide protection, and isolation. Based on the above, the reliability of the equipment affected by this modification is enhanced, an the design function is unchanged; therefore, this activity does not create the possibility of a an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

With the exception of replacement of the existing splices with quick disconnects, there is no change in the equipment design. The EBS Grayboot quick disconnect connectors are environmentally and seismically qualified for the proposed installation, and are considered equivalent in design and function; therefore, the proposed activity does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Improved Technical Specification (ITS) Bases B3.8.1, B3.8.2, B3.8.9 and B3.8.10 address the AC power distribution system for operating and shutdown conditions. These ITS Bases address the major power sources and components, and discuss the consequences and actions in the event of the inoperability of a power source. The AC electrical power sources are not changed in their capability to provide sufficient capacity, redundancy, and reliability to ensure availability of the power supplies to the valves.

ITS bases 3.4.5, 3.4.6, 3.4.7, 3.5.2, 3.5.3, 3.9.4 and 3.9.5 address ECCS and Decay Heat Removal during Modes 4, 5 and 6, and discuss the consequences and actions in the event of the inoperability of a component. The operation of the Decay Heat System is not affected by this change.

The specific cable routing meets 10CFR50 Appendix R criteria, and the conduit supports are designed within code (AISC) allowables and meet seismic criteria; consequently, the changes proposed by this modification do not reduce the margin of safety as defined in the ITS bases.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-04-03-02, Phase 1 (Modify EDG Air Handling System)

Description

This change is a modification to the Emergency Diesel Generator (EDG) Air Handling System (AH-XL) identified on FD-302-754, sheet 1 of 2. The scope of work covered by this MAR is as follows:

a) Addition of one, 30" x 30", and three, 20" x 24", supply registers on the supply fan discharge line in each engine room. Fans AHF-22A and AHF-22B provide cooling flow to EDG "A" and AHF-22C and AHF-22D provide cooling flow to EDG "B".

b) Replacement of the existing filters with new filters rated for a total system flowrate of 55,000 CFM. (Note: Only 47,000 CFM is required at this time. The 55,000 CFM value is based on the required air flow for the intended Upgrade of the EDG to 4150 kW. Both flowrates listed are based on 2 fan operation.)

c) Rebalance of the system airflows to new design requirements.

The scope of the structural work covered by this MAR is as follows:

a) Modification of the access platforms for the filters to allow installation of the new filters. The platforms to be modified are not safety related equipment. However, they are anchored through bolts onto safety related concrete walls. Therefore, only safety related concrete anchor bolts will be used. The platforms will be fabricated and installed per current plant procedures (NOW Manual, MP-804, MP-139). They are designed to meet standard requirements of design codes such as AISC, OSHA, and SBC (Standard Building Code). Seismic requirements are in accordance with the Environmental and Seismic Qualification Program Manual.

b) Evaluation of the additional weight due to the new grilles, on the existing duct and duct supports.

c) Sizing of the welds used to attach the new duct extensions to the existing duct. New grilles are being added to the duct system as described above. These grilles are housed in short duct sections (duct extensions) which are welded to the existing ductwork. Calculation S97-0121 has evaluated the weld size required and the additional weight of the grilles and duct extension.

d) Installation of padeyes for personnel fall protection at the platforms. The padeyes to be installed are not safety related equipment. However, they are anchored through bolts onto safety related concrete walls. Therefore, only safety related concrete anchor bolts will be used. The padeyes will be fabricated and installed per current plant procedures (NOW Manual, MP-804, MP-139). They are designed to meet standard requirements of design codes such as AISC, and OSHA.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The platforms modified by this MAR provide the same functions and meet the same design requirements as the existing platforms. Thus, the modification of the existing platforms to facilitate the installation of the filters will not have any effect on the occurrence of an accident previously evaluated in the FSAR.

Existing duct supports have been evaluated for the additional weight due to the new grilles and were found to be capable of supporting the additional weight. Therefore, the addition of the new grilles will not have any effect on the occurrence of an accident previously evaluated in the FSAR.

The new grilles and filters being installed by this MAR perform the same functions and meet the same design requirements as the existing grilles and filters. The installation of these components enhances the EDG Air Handling Systems' ability to operate within its design basis limits since it reduces the overall system pressure loss and fan horsepower requirements while maintaining the same air flow rate.

The padeyes installed by this MAR provide the fall protection functions and meet the design requirements of AISC and OSHA. Thus, the installation of the padeyes for fall protection will not have any effect on the occurrence of an accident previously evaluated in the FSAR.

The EDG Air Handling System is a support system for the EDGs and therefore is required to operate when the diesel is required to operate. The EDGs perform an accident mitigation support function for Design Basis accidents involving a Loss of Offsite Power (LOOP) by providing an assured source of electrical AC power for the accident mitigation systems. Failure of one of the EDGs (or one of their support systems) to perform its accident mitigation function, that is failure to start or provide adequate power, is postulated for the accidents involving a LOOP. The work associated with this MAR does not change the ability of the EDG to perform its accident mitigation function. The failure of EDG Air Handling System (AH-XL) or any component contained in this system is not an initiating event for any accident identified in Chapter 14 of the FSAR. The failure of one of the EDGs or its associated support system is not considered a precursor or identified in any accident initiation scenario other than Station Blackout (SBO).

Other accidents/conditions which must be considered include Station Blackout (SBO), High Energy Line Breaks (HELB) and flooding.

Both EDGs are assumed to not function in a SBO. As such, the support system are not required to function. Therefore, the work associated with this MAR does not impact the SBO analysis.

The components of the EDG Air Handling System affected by this MAR are located in the EDG Building. High energy piping is not located in the EDG Building and therefore breaks are not postulated to occur in this building. Therefore, no HELB failure modes are affected by this modification.

This MAR does not affect flooding. Also, none of the new equipment being installed is located on the floor, so there is no impact on a flood level (height). Finally, none of the work in this package involves modification to any existing curbs, nor does it install any new curbs, so there is no impact on flood levels.

In summary, the system performance has not been negatively affected by the installation of the additional supply grilles or the new type of filter. The EDGs remain capable of providing emergency electrical AC power during all accident events concurrent with a LOOP. The EDGs will continue to perform their function of providing power to the connected loads during postulated plant accidents. Since the EDG reliability is not adversely affected, the probability of a station blackout (SBO) is not increased. Therefore, there is not an increase in the probability of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

The platforms modified by this MAR provide the same functions and meet the same design requirements as the existing platforms. The new platforms have no effect on the consequences of an accident previously evaluated in the FSAR.

Existing duct supports have been evaluated for the additional weight due to the new grilles and were found to be capable of supporting the additional weight. Therefore, the addition of the new grilles will not have any effect on the consequences of an accident previously evaluated in the FSAR.

The padeyes installed by this MAR provide the fall protection functions and meet the design requirements of AISC and OSHA. Thus, the installation of the padeyes for fall protection will not have any effect on the consequences of an accident previously evaluated n the FSAR.

This MAR does not adversely affect EDG Air Handling System performance or reliability, therefore there is no adverse impact on the EDG reliability or availability. Since the EDG is unaffected, there is no adverse impact on existing accident analyses which require EDG operation and thus no increase in any accident consequence. This MAR does not affect or involve any radioactive components. It simply installs additional grilles and a different type of air filter in the supply ductwork of EDG Air Handling System. The new grilles and filters do not affect dose in any area of the plant. Additionally, this MAR does not affect or involve any of the 3 primary fission product barriers (fuel cladding, RCS piping/pressure boundary, or containment structure). The work associated with this MAR does not degrade or prevent any actions described or assumed in any accident described in the FSAR nor does it alter any assumptions previously made in evaluating radiological consequences of any accident describe in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

This MAR installs components into the EDG Air Handling System which meet or exceed the requirements of the original components. The system function is unchanged by the installation of additional grilles or by the change in type of filter utilized. The new components have the same failure mechanisms as the existing components.

The platforms modified by this MAR provide the same functions and meet the same design requirements a the existing platforms. The new platform systems are structurally adequate to meet their functional purpose, therefore they do not increase the occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR.

Existing duct supports have been evaluated for the additional weight due to the new grilles and were found to be capable of supporting the additional weight. Therefore, the addition of the new grilles will not have any effect on the occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR.

The padeyes installed by this MAR provide the fall protection functions and meet the design requirements of AISC and OSHA. Thus, the installation of the padeyes for fall protection will not have any effect on the occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR.

NOTE: Per page 7 of Topical Design Basis Document 9.2, Single Failure, "single passive failure of mechanical components (e.g. pipe breaks, separation of a valve disc from its stem, etc.), are not part of the CR-3 design basis and are not assumed in the design of fluid mechanical systems at CR-3." The following discussion is provided for completeness and is not intended to imply any commitment to single passive failure criteria.

The new filters are passive components and no active failure is associated with them. A passive failure of the filters would be exceeding the allowed pressure drop on the filters. This failure is no different than the same passive failure of the existing filters and the consequences would be the same, either a reduction in airflow or a bursting of the filter. Since the new filters have a higher burst pressure than the existing filters, the chance of filter rupture is lower. Also, the new filters have more media than the existing filters and therefore will load more slowly (pressure drop increases more slowly than for existing filters for the same dust loading). Since PM-139 checks filter differential pressures every three months, the chance of exceeding the filter changeout pressure is reduced. Therefore, the new filters do not create a different failure than previously evaluated.

The new filters are slightly heavier (approximately 10 lbs. per filter) than the existing filter and weigh approximately 6 lbs. more than the filters originally installed in the housing. The weight of the grilles and associated dampers is slightly more (approximately 35 lbs.) than the ductwork they are replacing. Therefore there is a seismic/deadweight impact. These impacts have been evaluated in structural calculation S97-0121, Revision 0 and found to be insignificant and within the capabilities of the existing supports.

The new grilles are passive components and no active failure is associated with them. A passive failure of the grille would be to reduce the airflow through that particular grille which would result in a slight reduction in the flow to the engine room. However, the flow through the other grilles would increase and total flow would remain nearly the same. The new grilles provide the same function as the existing grilles and therefore, no new failure mode is created. The duct extensions which house the new grilles and associated dampers are installed in the same manner as the existing duct extensions and therefore do not create an increase in probability of occurrence of a malfunction of equipment.

The work associated with this MAR does not delete or modify any system or equipment protective features or downgrade any support system performance. Additionally, it does not reduce any system or equipment redundancy or independence, nor does it increase the frequency of operation of the system or equipment. Therefore, the proposed activity does not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The changes installed by this MAR will not cause an increase in the failure of the EDG Air Handling System. There is no adverse impact on EDG operation. Therefore, there is no impact on the consequences of a malfunction of important to safety equipment. This MAR does not affect or involve any radioactive components. It simply installs additional grilles and a different type of air filter in the EDG Air Handling System. The new grilles and filters do not affect dose in any area of the plant. Additionally, this MAR does not affect or involve any of the 3 primary fission product barriers (fuel cladding, RCS piping/pressure boundary, or containment structure).

The platforms modified by this MAR provide the same functions and meet the same design requirements as the existing platforms. The new platform systems are structurally adequate to meet their functional purpose and do not increase the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

Existing duct supports have been evaluated for the additional weight due to the new grilles and were found to be capable of supporting the additional weight. Therefore, the addition of the new grilles will not have any effect on the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

The padeyes installed by this MAR provide the fall protection functions and meet the design requirements of AISC and OSHA. Thus, the installation of the padeyes for fall protection will not have any effect on the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

This modification to the EDG Air Handling System does not affect the operation of that system, the EDGs or any other plant equipment. The functions of the individual components being replaced and the EDG Air Handling System are not changed. The new components are all passive in function and do not introduce any new or different failure modes to the EDG Air Handling System, EDGs or any other existing plant equipment.

The new filters do contain minor amounts of combustibles (plastic and sealant). The addition of these combustibles has been evaluated and found to have insignificant impact on the fire loading of the area. The new fire load is still within the capability of the fire suppression system. The small amount of additional combustibles does not change the fire rating or create a hazard different from the existing fire. Additionally, the spray patterns of the sprinkler system are not impacted by this MAR.

The platforms modified by this MAR provide the same functions and meet the same design requirements as the existing platforms. The new platform systems are structurally adequate to meet their functional purpose and they will not be sources to cause any failure mechanisms.

Existing duct supports have been evaluated for the additional weight due to the new grilles and were found to be capable of supporting the additional weight. Therefore, the addition of the new grilles will not create the possibility of an accident of a different type than previously evaluated in the FSAR.

The padeyes installed by this MAR provide the fall protection functions and meet the design requirements of AISC and OSHA. Therefore, the addition of the new padeyes will not create the possibility of an accident of a different type than previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The platforms modified by this MAR provide the same functions and meet the same design requirements as the existing platforms. The new platform systems are structurally adequate to meet their functional purpose and they will not be sources to cause any different types of malfunction of equipment important to safety previously evaluated in the FSAR. Existing duct supports have been evaluated for the additional weight due to the new grilles and were found to be

capable of supporting the additional weight. Therefore, the addition of the new grilles will not create the possibility of a different type of malfunction of equipment important to safety than previously evaluated in the FSAR.

The supply grilles and filters being installed per this MAR meet or exceed the design requirements of the originally installed equipment. The failure mechanism of the filters and grilles are the same as for the existing filters and grilles. There are no new failure modes introduced and no new interfaces created by this MAR.

The padeyes installed at the platforms provide fall protection functions and meet the design requirements of AISC and OSHA. Therefore, the addition of the new padeyes will not create the possibility of a different type of malfunction of equipment important to safety than previously evaluated in the FSAR.

The components of the EDG Air Handling System affected by this MAR are located in the EDG Building. High energy piping is not located in the EDG Building and therefore breaks are not postulated to occur in this buildings. Therefore, no HELB failure modes are affected by this modification.

NOTE: Per page 7 of Topical Design Basis Document 9.2, Single Failure, "single passive failure of mechanical components (e.g. pipe breaks, separation of a valve disc from its stem, etc.), are not part of the CR-3 design basis and are not assumed in the design of fluid mechanical systems at CR-3." The following discussion is provided for completeness and is not intended to imply any commitment to single passive failure criteria.

The new filters are passive components and no active failure is associated with them. A passive failure of the filters would be exceeding the allowed pressure drop on the filters. This failure is no different than the same passive failure of the existing filters and the consequences would be the same, either a reduction in airflow or a bursting of the filter. Since the new filters have a higher burst pressure than the existing filters, the chance of filter rupture is lower. Also, the new filters have more media than the existing filters and therefore will load more slowly (pressure drop increases more slowly than for existing filters for the same dust loading). Since PM-139 checks filter differential pressures every three months, the chance of exceeding the filter changeout pressure is reduced. Therefore, the new filters do not create a different failure than previously evaluated.

The new grilles are passive components and no active failure is associated with them. A passive failure of the grill would be to reduce the airflow through that particular grille which would result in a slight reduction in the flow to the engine room. However, the flow through the other grilles would increase and total flow would remain nearly the same. The new grilles provide the same function as the existing grilles and therefore, no new failure mode is created.

This MAR does not affect flooding. Also, none of the new equipment being installed is located on the floor, so there is no impact on a flood level (height). Finally, none of the work in this package involves modification to any existing curbs, nor does it install any new curbs, so there is no impact on flood levels.

During the installation and post modification testing of this MAR, the EDG Air Handling System (and associated EDG) will be declared inoperable. This is acceptable since the other EDG will remain operable during this time.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

This MAR does not impact the Improved Technical Specifications (ITS). The EDG Air Handling System is not specifically addressed in the ITS. However, per the definition of "Operable - Operability" in section 1.1 of the ITS, the EDG Air Handling System is addressed as auxiliary equipment for the Emergency Diesel Generators (EDGs). Section 3.8.1 and 3.8.2 of the ITS identify the requirements for the EDGs. None of the requirements listed in those sections are impacted by installing additional supply grilles to the supply air system or by the change in type of filter. The changes do not affect the capability or reliability of the EDGs. Therefore, there is no impact to any margin of safety implied by the availability of the EDG. The bases for these sections do not specifically address the EDG Air Handling System so there is no impact to the bases of the Technical Specifications.

The platforms modified by this MAR provide the same functions and meet the same design requirements as the existing platforms. Therefore, the modified platforms have the same margin of safety as the existing platform.

Existing duct supports have been evaluated for the additional weight due to the new grilles and were found to be capable of supporting the additional weight. Therefore, the addition of the new grilles will not have any effect on any margin of safety.

The padeyes installed by this MAR provide the fall protection functions and meet the design requirements of AISC and OSHA. Therefore, the addition of the new padeyes will not have any effect on any margin of safety.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: 97-04-06-01 (ASV-204 Spring Pack Replacement)

Description

Lubrication of ASV-204 has reduced the stem friction of the valve (providing greater torque to thrust conversion), to the point that the torque switch has a minimum setting which exceeds the allowable thrust limits for the valve. The required range of adjustment can be restored by replacing the torque switch spring pack with a unit with a lower spring rate, similarly to the conversion performed for ASV-5 by MAR 95-11-05-01.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   ASV-204 admits steam to EFP-2 under emergency conditions. This valve is not used until after an accident occurs; the torque switch spring pack replacement proposed by this MAR will allow the valve to perform as designed. It replaces a similar part (different spring range) that performs the same function, but does not change the design, function, or method of performing the function of the valve. Since ASV-204 is not used until after an accident has occurred, it cannot initiate any FSAR [illegible]. Therefore, this change cannot increase the probability of occurrence of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Because of maintenance activities affecting valve parameters, the existing torque switch spring pack does not have adequate range for correct setting of the torque switch. Replacement of the existing spring pack with a unit with a lighter spring will restore the torque switch's ability to be set properly. The valve's ability to perform its safety function is thereby preserved; this cannot increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The proposed activity installs a correctly ranged spring pack (same design as existing except for spring range) to allow ASV-204 valve protective device (torque switch) to perform properly. This engineered feature guards against malfunction of the valve; restoring its ability to be properly set guards against equipment malfunction caused by overtorquing (which creates thrust levels too high for valve components to withstand). The calculated minimum thrust setting achievable with the replacement torque switch spring pack is 16,428 lbs, which will assure full travel of the valve stem without premature actuation of the torque switch; therefore, the probability of malfunction of equipment is not increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The proposed activity replaces ASV-204 torque switch spring pack with a similar unit (identical in function and design except for lighter spring tension), to restore the ability of ASV-204 torque switch to protect the valve components from overtorquing. This prevents valve malfunction, and preserves its ability to perform its safety function. If the torque switch were inadvertently set to its lowest setting with the new spring pack, the developed thrust would still be above the

imum required thrust for valve operation under all design conditions (ref. calculation E92-0214 and MAR DIR). Since the new spring pack allows the torque switch to protect the valve from overtorquing, provides minimum achievable thrust sufficient to assure full valve travel (even if torque switch is improperly set), and does not affect valve function or operation in any other way, ASV-204 failure modes are not affected by this change. ASV-204 cannot fail in a different way after this modification, and the consequences of a valve failure remain the same, so this activity cannot increase the consequences of a malfunction of equipment important to safety.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

This activity replaces the existing ASV-024 Limitorque operator torque switch spring pack with a new one with a different spring rate. The minimum achievable torque switch setting with the new spring pack still provides thrust above the minimum requirements for the valve, even if the switch is incorrectly set at its lowest setting (ref. calculation E92-0214 and MAR DIR), so the switch cannot prematurely open and stop valve travel. Neither the function or operation of ASV-204 is changed. The protective ability of its torque switch is restored, since the switch range will allow the proper setting to protect valve components from overthrust. Neither the valve function nor method of operation is being changed, and it will perform its design function exactly as before; therefore, the possibility of an accident of a different type is not created.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The design function of ASV-204 is to admit steam to EFP-2 (steam driven emergency feedwater pump). The replacement of the valve's existing torque switch spring pack with a new unit with different range will allow the valve's torque switch to properly perform its protective function (to protect the valve's components from overtorquing). The new spring pack is the same as the old one in design, function, and method of operation (except for spring tension). The minimum achievable thrust with torque switch at its lowest setting with the new spring pack is still above the minimum required for valve operation, so the torque switch will not prematurely stop valve travel (even if the torque switch is inadvertently set to its lowest setting). This activity does not effect the design function of ASV-204 in any operational mode, accident scenario, design basis event, or licensing basis event. Therefore, a different type of malfunction of equipment is not created by this activity.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The proposed activity will allow ASV-204's torque switch to be properly set, thereby preserving the valve's ability to fulfill its safety function as currently defined. Neither the valve's function, method of performing it, nor probability of failure is adversely affected by this activity; therefore, the margin of safety is not reduced.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-05-15-05 (Upgrade EDG Radiator Fan Drive Assembly)

Description

This modification will upgrade the radiator fan drive assemblies that will be installed, under MAR 97-05-15-01, on the Emergency Diesel Generators (EDGs) at Crystal River Unit 3 (CR-3). MAR 97-05-15-01 will replace the EDG radiators, fans, and some fan drive components to support increasing the EDG ratings identified under MAR 96-10-05-01. An increase in required radiator fan drive train horsepower is a result of the EGD Radiator Modification 97-05-15-01. This modification is being performed to strengthen selected drive train components and connections to assure that they can withstand the required horsepower demands of the radiator fan (installed under MAR 97-05-15-01) during low temperature operation [15 deg F]. During such operation the required horsepower to the drive train components is increased due to the increase in density of the air being drawn into the radiator with the fan rotating at a constant 900 RPM. The radiator fan flow rates are based on the maximum intake supply temperature , the constant fan speed based on a fan blade pitch, and the use of Ethylene Glycol/water solution for the radiator coolant. This is a mechanical modification to the EDG skid which is safety related.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The failure of an EDG is not considered a precursor or contributor to any design basis accident other than Station Blackout where both EDGs are assumed to have failed. However, this modification only enhances the reliability of the EDG without creating any new interfaces or adversely affecting existing ones. The upgrade of the drive train's clutch assembly and connection joints, enhances its overall capabilities without adversely impacting other drive train components. Therefore, this modification cannot increase the probability of occurrence of an accident evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The EDG drive train assembly is a support system for the EDGs and is required to operate when the diesel is required to operate. The EDGs perform an accident mitigation support function for design basis accidents involving a Loss of Offsite Power [LOOP] by providing an assured source of electrical AC power for the accident mitigation systems. Failure of one of the EDGs (or one of their support systems) to perform its safety function, i.e., failure to start or provide adequate power, is postulated for the accidents involving a LOOP. The work associated with this MAR increases the design capability on the drive train; thereby, providing for better assurance of proper performance under accident conditions. As discussed above, the mitigation capabilities of the EDGs and their support systems remain unchanged by this modification. In addition, the consequences of a SBO are unaffected because both EDGs and their associated support systems are assumed not to function in the event.

   The assumptions in the accident analysis's [of at least one EDG and ES train is available] will remain valid, and the calculated consequences of all accidents evaluated in the SAR will remain unchanged because the 3 primary fission product barriers remain unaffected. Therefore, the consequences of an accident previously evaluated in the SAR could not be increased by this modification.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The upgrade will increase the clutch assembly, the connection joints and the overall drive trains load capability to transmit engine HP to the radiator fan. This change assures that all of the constituent drive train components are capable of withstanding HP demands commensurate with EDG Mode 5 operation [230 HP] and well as Mode 4 - 1 operation. In this way the reliability of the radiator drive train and therefore the EDG has been maintained without any adverse affect on other SSCs.

This modification will not alter the function or operation of the EDGs. The internal modifications to the drive trains components and connections [clutch assembly, connection joints] will only improve the load carrying capability of the diesel radiator drive train. This modification will not affect the drive train configuration or support configuration as installed under the radiator modification [MAR 97-05-15-01]. All drive train components will have sufficient design capability, with safety factors, to maintain the required HP demand during low temperature radiator fan operation.

No new interfaces are created and no existing ones are adversely affected by this modification. No new failure modes are introduced and no existing ones are adversely affected by this modification.

Therefore, this modification could not increase the probability of occurrence of a malfunction of equipment important to safety as previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

This modification will not affect the function or operation of the EDGs, EDG associated equipment [drive train components] or 4160V ES busses as previously evaluated in the SAR. A complete failure of an EDG, including its support system, has been postulated in the FSAR. As this modification upgrades the diesel radiator fan drive train to provide a greater capability of transferring more power required for low ambient temperature operation of the fan, it can only enhance the diesel performance capabilities. The performance and mitigation capabilities of the EDGs and associated drive train components are not diminished by this modification.

Therefore, the consequences of malfunction of equipment important to safety previously evaluated in the SAR cannot be increased by this modification.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

This modification only affects the diesel generator, and complete failure of a diesel and/or supporting systems is addressed in the SAR. No new interfaces are created and no existing ones are adversely affected by this modification. Therefore, this modification cannot create the possibility of an accident of a different type than previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

This modification will upgrade the centrifugal clutch assembly and connection joints in the drive train determined to have insufficient horsepower capacity to support fan operation at required flows at minimum ambient air temperatures [15 deg F]. The centrifugal clutch and identified connection upgrades will increase the clutch [270 HP] and connections [300 HP] capacity to transmit engine HP to the radiator fan. This change assures that all of the constituent drive train components are capable of withstanding HP demands commensurate with EDG Mode 5 operation [230 HP] and Modes 4 - 1. In this way the reliability of the radiator drive train [clutch assembly and connection joints] and therefore the EDG has been maintained without any adverse affect on other SSCs.

This modification will not alter the function or operation of the EDGs. This modification will not affect the drive train configuration or support configuration as installed under the radiator modification [MAR 97-05-15-01]. All drive train components have sufficient design capability, with safety factors, to maintain the required HP demand during low temperature radiator fan operation.

The drive train component connections will be assembled utilizing a shrink fit between the connection hub and shaft. This assembly technique is superior to a friction fit and therefore is capable of higher torque transmission.

No new interfaces are created and no existing ones are adversely affected by this modification. No new failure modes are introduced and no existing ones are adversely affected by this modification.

Moreover, the complete failure of a diesel and/or it supporting systems is addressed in the SAR. This modification increases the capability of the radiator fan drive train to provide the required power at low ambient temperatures by modifying the clutch. Malfunction of the drive train components would simply render the diesel inoperable, creating a failure of the diesel which has already been addressed in the SAR.

Therefore, this modification cannot possibly create a different type of malfunction of the equipment important to safety than previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Specific margins of safety are not quantified in the basis for any Tech. Spec. applicable to the EDG system. However, certain acceptance requirements are quantified in the ITS bases to ensure electrical power is available post-DBA.

The Bases for Tech Spec 3.8.1 Electrical Power Systems AC Sources - states that the electrical power system for CR-3 provides independence and redundancy to ensure an available source of power for the Engineered Safeguards (ES) systems.

The onsite power source for each 4160V ES bus is a dedicated EDG.

In the event of loss of off-site power, the ES electrical loads are automatically connected to the EDGs in sufficient time to provide for a safe reactor shutdown and to mitigate the consequences of a design basis accident.

Each EDG must be capable of starting, accelerating to rated speed and voltage, and connecting t its respective ES bus on detection of bus undervoltage. This must be accomplished within 1ι seconds.

Each EDG must be capable of accepting required loads within the assumed loading sequence intervals, and continue to operate until offsite power can be restored to the ES buses. These capabilities are required to be met from a variety of initial conditions, such as the EDG in standby with the engine hot and the EDG in standby with the engine at ambient conditions. Proper sequencing of loads, including shedding of nonessential loads, is a required function for EDG operability.

The modification to the EDG radiator fan drive train will not alter the function and operation of the EDG, or affect the performance capabilities of the subject drive train to assist the EDG. Therefore, this modification will not affect the existing acceptance requirements or reduce any margin of safety identified in the ITS Bases.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: 97-05-18-01 (IAP-1B Motor Replacement)

Description

This modification will replace the motor at IAP-1B. The old motor is obsolete. The new motor's rating has increased from 114 amps to 119.9 amps. IAP-1B is a 100 HP continuous duty motor with a service factor of 1.15.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   IAP-1B is not an initiator to Chapter 14 accidents nor is this equipment credited in the accident analysis during licensing basis events. Therefore, changes to non-accident initiators cannot increase the probability of occurrence of an accident.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The backup instrument air compressor IAP-1B motor change ensures a viable supply of backup instrument air is available when needed. The associated breaker coordination review (REA 97-0555) ensures the installed equipment is adequately designed and switchgear components protect the load and cables as required. This modification will help ensure instrument air system availability. The function and operation of the system is not changed. Therefore, all systems which use the instrument air system will not be adversely impacted and accident consequences are not increased.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   This modification provides proper motor selection and ensures the associated cable sizing, switchgear protective settings, and breaker coordination review for backup air compressor IAP-1B. The selection of equipment is in conformance to CR-3 Electrical Design criteria, and is consistent with criteria stated in FSAR section 8.2.2.5. Therefore, this design activity does not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The modification is limited to changing components associated with the backup instrument air compressor. Per FSAR section 14.1.2.9.4, the ADVs are provided their own dedicated backup supply of bottled air during an SBO event. Per FSAR section 9.10.2, instrument air is not required for any pneumatic components required for safe shutdown or reactor building isolation. Breaker coordination review conducted per REA 97-0555 ensures the design activity has no impact on switchgear MTSW-3D. The instrument air system and switchgear MTSW-3D bound the equipment interface associated with this modification and the information supplied in this section justify why there is no impact to these systems. Therefore, the proposed activity does not increase the consequence of a malfunction of equipment important to safety.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

This modification is limited to replacing the backup air compressor IAP-1B motor. The changes ensure the function of the backup air compressor is available if the normal station air compressors are unavailable. The changes are confined to components that are only used to operate the backup air compressor. The electrical calculation review ensures the new settings properly protect all components associated with IAP-1B and are properly coordinated with the Reactor Aux. Bus MTSW-3D. Since the changes to existing equipment are properly designed and the changes are confined to non-accident initiator equipment, the activity does not create the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The design changes are limited to replacing the backup air compressor IAP-1B motor. The modification does not add, reduce, or modify the function of the equipment or change the interface of the equipment to other plant systems. Since there is no net change to plant equipment due to this modification, the activity does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Since IAP-1B or its function is not described in the basis of any ITS, including B3.6.3, 3.7.2 and 3.7.4 (instrument air for MSIVs, ADVs, and Containment Purge Valves), then the activity does not reduce the margin of safety as defined in the bases for any Improved Technical Specifications.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-05-19-01 (EDG Room Cooling Fan Control Circuit)

Description

The Emergency Diesel Generator Air Handling System consists of two separate but identical ventilation systems. Each system consists of two fans and associated ductwork (AHF-22A and AHF-22B for EGDG-1A, and AHF-22C and AHF-22D for EGDG-1B). Currently, both fans automatically start when the diesel begins block loading, even though only AHF-22A or AHF-22B is required for EGDG-1A, and only AHF-22C or AHF-22D is required for EGDG-1B. Fans AHF-22A and AHF-22C have remote shutdown isolation circuitry, but fans AHF-22B and AHF-22D do not have this circuitry.

As a result of testing done under MAR 96-10-05-01, the diesel generator is being upgraded to a higher load rating, and both fans will be required for diesel generator operation. Consequently, the circuits for fans AHF-22B and AHF-22D need to be provided with remote shutdown isolation circuitry to ensure their capability to support the diesel generators upon transfer of control to the Remote Shutdown Panel. In addition, as a result of the Thermo-Lag reduction program, certain circuits have been identified for circuit reroutes. Additional analyses of the existing routing and circuitry have determined that certain cables need to be rerouted for AHF-22C and AHF-22D to meet Appendix R requirements. Emergency Diesel air handling fan requirements will be addressed by the diesel upgrade MAR 96-10-05-01.

MAR 97-05-19-01 provides for the modification of the control circuits for diesel generator room cooling fans AHF-22B, AHF-22C, and AHF-22D. The Mar provides separation of redundant trains, and provides remote shutdown control circuit isolation for fans AHF-22B and AHF-22D in order to fully conform to Appendix R requirements. Required conduit is being routed by MAR 97-05-17-02 to meet the above 10CFR50 Appendix R requirements. The MAR is safety related as defined in the 10CFR50.59 Safety Evaluation and associated design documents.

The changes being implemented by this modification are the installation of remote isolation circuitry for AHF-22B and AHF-22D, and relocation of the control circuit cables for AHF-22C and AHF-22D to comply with the requirements of 10CFR50, Appendix R. In addition, this modification relocates Relay 2AH-371-PS to another fire area.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The changes to the circuits that are being implemented by this modification involve cable rerouting and addition of remote isolation circuits to meet Appendix R criteria. These changes do not affect the safety function of the end devices (AHF-22B, AHF-22C , and AHF-22D). AHF-22A and AHF-22B automatically start when Diesel 1A begins block loading, and AHF-22C and AHF-22D automatically start when Diesel 1B begins block loading.

   Rerouting of the circuits for fans AHF-22C and AHF-22D will reduce the possibility of loss of the fan during a design basis fire and therefore not increase the probability of occurrence of an accident previously evaluated in the FSAR. Addition of remote isolation contacts for AHF-22B and AHF-22D will provide the capability to isolate these fans from a control room fire, but will have no adverse impact on the safety function of the fans; therefore it will not increase the probability of occurrence of an accident previously evaluated in the FSAR.

In addition of safety related conduit supports, conduit, cable, and fuses to these circuits, since they are designed for seismic and environmental effects, will not adversely impact the electrical distribution system nor increase the probability of a Station Blackout event.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

The changes being implemented by this modification are the installation of remote isolation circuitry for AHF-22B and AHF-22D, and relocation of the control circuit cables for AHF-22C and AHF-22D to comply with the requirements of 10CFR50, Appendix R. In addition, this modification relocates Relay 2AH-371-PS to another fire area to reduce the possibility of loss of Fan AHF-22D for a license basis fire. The EGDG Air Handling System in general is not changed by this modification, and the system will continue to function as designed, and the consequences of an accident previously evaluated in the FSAR are not increased.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The new cable, terminal blocks, and fuses to be installed by this modification have been qualified for a mild environment, and the conduit supports have been designed to applicable codes and for postulated seismic events. Cable and conduit routing is being upgraded to preclude the effects of a license basis fire.

A failed cable, terminal black, or fuse is considered a single failure as defined by Criterion 21 of 10CFR50, Appendix A, General Design Criteria. Single failure criteria is not violated by the failure of a cable, terminal block, or fuse because the redundant train is unaffected and available to perform the safety function. The qualification of existing essential equipment is not impacted, and the physical separation of redundant circuits is being improved; therefore there is no increase in the probability of occurrence of a malfunction of equipment important to safety.

Spare contacts of existing safety-related relays will be utilized for the remote shutdown isolation circuitry. Although failure of the added remote shutdown isolation circuit relay contacts or fuses could cause the fan to not operate, the circuitry and fuses being added to AHF-22B and AHF-22D are identical to the approved circuitry that already exists for Fans AHF-22A and AHF-22C, and will provide Appendix R safe shutdown compliance for these fans for licensing basis control room fire. The relay contacts and fuses have an inherently low probability of failure and have been designed, procured, and installed under strict controls, therefore the probability of their malfunction is negligible. The qualification of existing essential equipment is not impacted, and the physical separation and isolation of redundant circuits is being improved; therefore there is no increase in the probability of occurrence of a malfunction of equipment important to safety.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The addition of remote shutdown isolation circuitry and circuit rerouting enhance the reliability of the redundant control circuits for AHF-22B, AHF-22C and AHF-22D by ensuring a design basis fire does not affect both trains. A single failure of the cable or fuse could result in loss of control power to one of the redundant safety related fans; however, since the modification makes the AHF-22B and AHF-22D circuitry identical to the AHF-22A and AHF-22C circuitry, the previous analysis for single failure remains the same for the fan safety functions. Therefore, the reliability of the control circuit to the equipment is not diminished by this modification, and the consequences of malfunction of equipment previously evaluated in the FSAR is not increased.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The worst case postulated failure for these circuits is that a design basis fire will cause open circuits, shorts, or grounds which could result in loss of a fan control circuit. Also, the control circuits for fans AHF-22B and AHF-22D presently do not have remote shutdown isolation circuitry which would allow the control circuit to be isolated from the control room during a control room fire; therefore, the fans are currently assumed to be lost for this event. This modification enhances the ability to prevent these anomalies from developing due to a design basis fire by routing cable and providing remote shutdown isolation in accordance with 10CFR50, Appendix R. The modification provides added protection by using existing fire barriers and by routing some cable in conduit to provide separation, protection, and isolation. Based on the above, the reliability of the equipment affected by this modification is enhanced, and the design function is unchanged; therefore this activity does not create the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The new cable, terminal blocks, and fuses to be installed by this modification have been qualified for a mild environment, and the conduit supports have been designed to applicable codes and for postulated seismic events. The new remote shutdown isolation circuits for fans AHF-22B and AHF-22D are considered equivalent in design and function to the existing circuits for AHF-22A and AHF-22C; therefore, the proposed activity does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Improved Technical Specification (ITS) Bases B 3.8.1, B 3.8.2, B 3.8.9, and B 3.8.10 address the AC power distribution system for operating and shutdown conditions. These ITS Bases address the major power sources and components, and discuss the consequences and actions in the event of the inoperability of a power source. The AC electrical power sources are not changed in their capability to provide sufficient capacity, redundancy, and reliability to ensure availability of the power supplies to the fans.

The specific cable routing meets 10CFR50 Appendix R criteria, and the conduit supports are designed within code (AISC) allowables and meet seismic criteria; consequently, the changes proposed by this modification do not reduce the margin of safety as defined in the ITS bases.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-06-10-01 (AHV-1A and 1D Circuit Isolation)

Description

This MAR addresses the corrective action required for the Reactor Building purge valves AHV-1A and AHV-1D with respect to the "Notice of Violation" Nuclear Regulatory Commission (NRC) Inspection Report No. 50-302/95-21-03 and the subsequent Licensee Event Report (LER) 95-025-02. This MAR also satisfies the commitment made regarding restart issue D-30.

Therefore, this MAR performs the following activities:

1. Installs fuses in terminal box AH-23 and AH-24 to isolate the non-safety related high radiation contacts number RM-A1-1 in the Control Room Radiation Monitoring Cabinet from the safety related control circuits for purge valves AHV-1A and AHV-1D (Drawing Ref. 208-005 AH-35). All equipment shall be seismically mounted. Structural requirements will be addressed by an FCN with the appropriate SA/USQD.

2. Installs isolation fuses in terminal box AH-23 and AH-24 to isolate the non-safety related differential pressure switch contacts AH-552-DPS and AH-266-DPS from the safety related control circuits for purge valves AHV-1A and AHV-1D respectively (Drawing Ref. 208-005 AH-35). All equipment shall be seismically mounted. Structural requirements will be addressed by an FCN with the appropriate SQ/USQD.

3. Downgrades Class 1E (B) cables AHE46 and AHE51 to Non-Class 1E or Associated (XB) cables. These cables are routed from the Radiation Monitoring cabinet in the Control Room to terminal boxes AH-23 and AH-24 respectively. The cables have been verified as being routed in Class 1E (B) raceway for their entire length and satisfy the requirements of FSAR Sections 8.2.2.12 and 8.2.2.13 and the Electrical Design Criteria - Electrical Circuit Physical Separation and Cable Tray Loading (Rev. 4 dated 04-27-95) criteria. The change was determined not to affect the design, function or method of performing a function described in the FSAR. Therefore, because no criteria are violated, the downgrading of these cables does not require a USQD.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   None of the accidents evaluated in the FSAR are initiated by the containment purge valves. Additionally, this Modification does not affect the function or the method of performing the function of containment isolation. Therefore, the probability of occurrence of an accident previously evaluated in the FSAR cannot be increased.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   No assumptions utilized in the FSAR accident analyses are changed or affected. The containment isolation functions of the Reactor Building purge valves AHV-1A and -1D are not affected by this Modification. Failure of the fuses being installed by this Modification will not affect the valves' ability to maintain containment integrity; therefore, the proposed activity cannot increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

This Modification provides isolation fuses between non-safety related and safety related portions of the control circuits for Reactor Building purge valves AHV-1A and -1D. Failure of these fuses does not affect the ability of the valves to perform their safety function (containment isolation). Providing proper isolation of non-safety related portions of AHV-1A and AHV-1D control circuits will protect the control power supplies of other equipment important to safety (MUV-253, CAV-2 & CAV-6). Therefore, the modification cannot increase the probability of a malfunction of equipment important to safety previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The installation of isolation fuses does not change the electrical control logic and therefore does not change the function or method of performing the function of the operation of the purge valves AHV-1A and AHV-1D. Because the purge valves AHV-1A and AHV-1D will perform the same function as previously the consequences of a malfunction would remain the same. Therefore, there is no change in consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

These valves and their associated control circuits cannot initiate accidents. The installation of isolation fuses by this Modification does not affect the function or method of performing the function of the Reactor Building purge valves AHV-1A or AHV-1D. The failure of the fuses does not affect the ability of the valves to maintain containment integrity. In most accident scenarios, the valves are closed and deactivated already (Modes 1-4). Therefore, the proposed activity cannot create the possibilities of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

Equipment failure modes and interfaces are not changed from what is described in the FSAR. Required safety related equipment is the same as existing with the addition of required separation features. System and equipment operation are not changed; failure of the isolation fuses installed by this Modification would only affect the ability of AHV-1A and AHV-1D to open (not their safety function). Therefore, no new possibility of a different type of malfunction could be created.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

ITS Bases were reviewed, and none were found to be affected by the proposed modification. Sections B3.6, B3.6.3 apply to these valves.

The margins of safety related to these valves pertain to containment integrity (leak rate) under accident temperatures/pressure conditions. Proper isolation of non-safety related circuit components from safety-related components will not reduce the margin of safety, in that the control power supplies of other safety-related equipment (MUV-253, CAV-2 & CAV-6) are

protected from failure of non-safety related components. Otherwise, system performance and operation are unchanged by this Modification, and failure of the circuit isolation fuses does not affect the ability of the Reactor Building purge valves AHV-1A and AHV-1D to maintain containment integrity (their safety function). Therefore, the margin of safety as defined in the bases for any Improved Technical Specification will not be reduced by the proposed change.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-06-16-01 (Modifications to The RCP Lube Oil Collection Systems)

Description

The RCP motor lube oil piping and collection systems will be modified by MAR 97-06-16-01 in order to bring them into full compliance with 10CFR50 Appendix R, Section III.0.

Several potential lube oil leakage sites have been identified and reported in LER 97-009 which are outside the lube oil collection systems on each of the four RCP motors. These sites will be brought into Appendix R compliance by modifying the lube oil systems and the lube oil collection systems.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The loss of coolant flow accident is discussed in the FSAR. The modifications required in MAR 97-06-16-01 do not affect the configuration or design function of the lube oil system or lube oil collection system, therefore, the probability of occurrence of internal motor faults or power supply faults to the motor which could affect the probability of a loss of coolant flow accident are not increased. The modifications are an enhancement to the RCP lube oil collection system's performance and will meet applicable design, material, and construction standards. The changes will therefore minimize the possibility of lube oil induced fire, and the probability of a design basis fire in the reactor building is not increased. Therefore, the probability of occurrence of an accident previously evaluated in the FSAR is not increased.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The consequences of a loss of coolant flow accident will not be affected since the modifications proposed by the MAR are structural improvements to the RCP lube oil collection systems and will not impact the operation of the RCP motor. Also, there are no changes which could affect the pump coastdown profile as discussed in the FSAR Section 14.1.2.6 because the modifications do not affect the RCP motor function or configuration. The CR-3 Fire Protection Plan postulates a reactor building fire that includes the total inventory of the four RCP lube oil systems and determines that this event will not prevent the safe shutdown of the plant. Therefore, these modifications to the RCP lube oil and lube oil collection systems will not increase the consequences of this event. Also, these structural improvements do not create any new release mechanisms, and they do not have an impact on any radiation release barriers or calculated radiological doses. Therefore, there are no radiological consequences associated with these modifications.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The enhancements to the RCP lube oil collection systems are improvements and will not have an adverse affect on the RCP motor, lube oil system, or lube oil collection system. The modifications will meet applicable structural codes and standards. Therefore, the probability of a malfunction of equipment important to safety is not increased.

Attachment A
Summary of Safety Evaluations

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The proposed changes to the lube oil collection system could not have any radiological consequences since they are structural enhancements which will minimize the loss of oil from the collection systems. There is no potential to increase the consequences of the failure of equipment credit to the mitigation of FSAR accidents. Also, no new release mechanisms are created and there is no impact on radiation release barriers.

5. Could the proposed activity creat- t[illegible]ssibility of an accident of a different type than any previously evaluated in the SAR

Since the configuration and function of the oil collection system is not altered, there is not an increase in the probability of an accident previously thought to be incredible in the FSAR. The enhancements to the lube oil system do not create any new accident initiators or failure modes of different type than those previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The modifications to the RCP lube oil and lube oil collection systems improve the oil collection capabilities on the motors. With this improved capability, the amount of oil collected will closely correspond to the amount of oil added through the oil addition lines. This will provide a higher degree of confidence that any oil leakage is being collected by the system, but will not cause any changes in procedures or maintenance activities. The Appendix R requirements for collecting from all potential RCP lube oil leakage sites will be met without creating the possibility of a different type of malfunction of equipment important to safety. There are no adverse effect possible from the proposed changes that could create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

There are no safety limits challenged by the modifications to the RCP motor lube oil systems. Also, the upgrades to the lube oil systems will not cause any changes in ITS controlled parameters such as thermal power or fuel damage. The modifications will ensure Appendix R and FPC requirements for the RCP lube oil and lube oil collection systems are met. The pump motor coastdown characteristics are not changed and all accident analysis assumptions remain bounding. Therefore, the margin of safety is not reduced.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-06-18-01 (Installation And Removal Of Temporary Jumpers)

Description

The Revision 0 Safety Assessment for MAR 97-06-18-01 addressed the original MAR scope and concluded that no USQD was required to implement the scope as defined. A management waiver was granted for the requirement to generate a USQD for this MAR. FCN #1 added to the scope of MAR 97-06-18-01 the installation and removal of temporary jumpers to support work activities while the plant was in Mode 5. Revision 1 of the Safety Assessment, which reviewed FCN #1, determined that a USQD was required for the additional scope of work implemented in FCN #1. This USQD, therefore, is written specifically to address the scope of work described in FCN #1 to MAR 97-06-18-01.

FCN #1 to MAR 97-06-18-01 provides for the installation and removal of temporary mechanical jumpers and isolations so that the Turbine Generator Lube Oil system may be flushed and the Turbine may be put on Turning Gear while the Rotor is not installed. These temporary modifications are of a routine nature and implemented per instructions and requirements provided by Westinghouse.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The use of mechanical jumpers and isolations for the turbine lube oil system while in Mode 5 is not a precursor or initiator for any accident evaluated in the FSAR. These components will be removed from the turbine lube oil system upon reinstallation of the rotor. The jumpers and isolations installed and removed per FCN #1 of MAR 97-06-18-01, therefore, do not increase the probability of occurrence of any accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The temporary use of mechanical jumpers and isolations in the turbine lube oil system while awaiting reinstallation of the generator rotor is not a precursor or initiator to any accident and does not alter any assumption previously made in evaluating the radiological consequences of any accident described in the FSAR.

   The use of these jumpers and isolations does not play any direct or indirect role in mitigating the radiological consequences of any FSAR described accident and does not affect any fission product barrier.

   Therefore, there is no increase in the consequences of an accident previously evaluated in the FSAR resulting from the implementation of FCN #1 to MAR 97-06-18-01.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The turbine, and the turbine lube oil system, are classified as a non-safety related plant components. There are no effects, either direct or indirect, to equipment evaluated as important to safety that are impacted by the implementation of FCN #1 to MAR 97-06-18-01.

The temporary use of jumpers and isolations per FCN #1, while the rotor is removed in Mode 5, does not impact, directly or indirectly, any equipment evaluated as important to safety.

Therefore, there is no increase in the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The turbine generator, and turbine lube oil system, is outside of the reactor building containment boundary. These components have no role in the mitigation of any accident. The modifications of MAR 97-06-18-01 FCN #1 do not impact the operation or performance of any important to safety equipment.

Therefore, there are no changes to the consequences of a malfunction important to safety that have previously been evaluated in the FSAR that result from the implementation of MAR 97-06-18-01 FCN #1.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The installation of mechanical jumpers and isolations for performing a turbine lube oil flush and operation of the turbine turning gear while the plant is in Mode 5 does not effect the operation, performance, or interface with any fission product boundary or equipment important to safety.

Therefore, there is no possibility of an accident of a different type than any previously evaluated in the FSAR that results from the implementation of MAR 97-06-18-01 of FCN #1 to that MAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

There are no new failure modes of equipment important to safety created by the implementation of MAR 97-06-18-01. A failure of one of the mechanical jumpers or isolations installed in the turbine lube oil system during Mode 5 has the potential of spilling lube oil within the turbine building or of keeping the turbine off of the turning gear, but this has no affected upon the operation of equipment important to safety that is required in Mode 5.

Therefore, implementation of FCN #1 to MAR 97-06-18-01 does not create the possibility of any different type of malfunction of equipment important to safety than have been previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The operation or performance of the generator rotor, or the turbine lube oil system in Mode 5, is not addressed, or credited for operation, in the basis for any Improved Technical Specification. Therefore, the implementation of MAR 97-06-18-01 does not reduce the margin of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: W97-07-06-01 (New Bentley Nevada TSI)

Description

MAR 86-11-02-01/03 installed new Bentley Nevada Series 3300 Turbine Supervisory Instrumentation (TSI) in the Test Instrumentation Calibration Room to provide increased local diagnostics for the main turbine. MAR 89-12-14-01/02 installed new proximeters and probes for the main feedwater pumps and turbines to extend this capability to the feed pumps. The MAR was issued primarily to take advantage of a feed pump turbine maintenance outage. Therefore, the probes were installed, but connection to the new vibration monitoring equipment was deferred. The existing Bentley Nevada 5000 Series monitoring equipment has remained in service until the present.

Numerous instances of spurious alarms have underscored the need to complete this installation. REA 94-0757 documented a problem with FWP-2A outboard bearing going in and out of alarm due to low frequency (4 Hz, or 240 rpm) noise. Since the pump rotating speed is 4500 to 4800 rpm, or 75 to 80 Hz, the low frequency noise was not associated with the rotating element. Subsequent analysis by Bentley Nevada concluded that the 4 Hz signal component was due to flow instability in the suction piping. TMAR 94-06-08-01 temporarily raised the "alert" and "danger" setpoints for the outboard bearing to preclude spurious alarms. However, hardware solutions such as the addition of low frequency filters were rejected, since the new Series 3300 System would resolve this issue, once fully implemented.

This CGWR connects the new FWP-2A and 2B probes/proximeters to the Bentley Nevada Series 3300 system in the Test Instrument Calibration Room to provide local indication at VMC-1. The system provides the following indication: FWP-2A/2B and FWTB-1A/1B inboard and outboard vibration (x and y axis), FWP-2A/2B and FWTB-1A/1B thrust bearing vibration and position, FWTB-1A/1B shaft eccentricity. The existing vibration monitoring system is unaffected by this activity and remains fully functional.

In addition to connecting the probes/proximeters, this CGWR also installs spare cables from VMC-1 to local terminal boxes at the feed pumps. These cables will be used to provide annunciator output to the Control Room Events Recorder when the Series 5000 System is retired. Interface with the Events Recorder and disconnecting the existing vibration monitoring system will be accomplished by MAR 90-09-09-01.

The TSI equipment is a diagnostic tool used by the operator to trend potentially degraded conditions. It performs no control functions, provides no interlocks nor initiates any equipment trips. The FSAR recognizes the existence of this system and lists main turbine and main feedwater pump turbine vibration, eccentricity, differential expansion and thrust bearing wear among the principal alarms for the Steam and Power Conversion System. NOD-31 lists the main feedwater pumps among the systems/equipment required for normal reactor heat removal. However, the system performs no safety function and is classified as non-safety related. it should be noted that this activity provides additional and improved diagnostic capability, thereby enhancing safe operation of the main feedwater pumps.

The supervisory instrumentation can fail in one of two ways. It can provide erroneously low indication and fail to provide indication and alarm of a valid trouble condition, or it may provide erroneously high indication and provide spurious or false alarms. These same failure modes are shared by the existing Bentley Nevada 5000 Series. However, since the supervisory system provides no automatic control, actuation or interlocks, and procedures are in place to ensure proper response to alarm conditions, these failure modes have no nuclear safety significance. Because the two monitoring systems are totally independent and utilize their own probes/proximeters, connecting the new feedwater pump sensors to the 3300 System can not impact the existing 5000 Series equipment, its indication or alarms.

FSAR Section 14.2.2.9 was reviewed for potential impact of this activity on the Loss of Feedwater analysis. Since the supervisory instrumentation plays no initiating or mitigating role in this accident, the FSAR analysis could not be impacted by this change

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   Feedwater pump supervisory monitoring is passive in nature and provides no automatic control functions, interlocks or trips for any plant equipment. This equipment directly monitors the performance of the feed pumps and feed pump turbines, but does so in a manner consistent with vendor recommended practices. No other interfaces are established by this activity. Connection and activation of supervisory instrumentation can neither initiate nor precipitate a loss of one or both feedwater pumps. Therefore, the proposed activity could not increase the probability of occurrence of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   As previously discussed, the supervisory instrumentation provides no automatic control functions, interlocks or trips for any plant equipment. In addition, the indication provided is not relied upon in the mitigation strategy for any analyzed accident. This equipment is purely diagnostic in nature and is only used to trend potentially degraded conditions. In addition, this activity has no impact on any SSC associated with the storage, transportation or disposal of radioactive material. Therefore, this activity could not increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   As discussed previously, supervisory instrumentation is strictly diagnostic and performs no automatic protective or interlock function. Installation of this CGWR provides additional local monitoring capabilities, but has no impact on or interfaces with the existing system. The new supervisory instrumentation does not interface with any SSCs other than the main feedwater pumps, turbines, VMC-1 and raceway in the Turbine Building. The interfaces established by this activity are consistent with vendor recommendations and standard construction practices and create no new failure modes. As indicated previously, this activity provides additional and improved performance monitoring capabilities and thereby enhances safe operation of the main feedwater pumps.

   Based on the above discussion, connection of the new supervisory instrumentation has no impact on the function of any SSC described in the FSAR. Furthermore, activation of the new system introduces no new failure modes. Therefore, the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR could not be increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   FSAR Section 10.3.5 describes the loss of one or both feedwater pumps, but contains no discussion of the role of supervisory instrumentation. Supervisory instrumentation is strictly

diagnostic in nature and performs no automatic protective or interlock function. Its primary function is the detection and trending of potentially degraded conditions to help prevent component failure; it performs no function once a failure has occurred. As discussed previously, this activity enhances the diagnostic capabilities and has no impact on the existing supervisory instrumentation. Therefore, the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR could not be increased.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

As previously indicated, connection of the new probes/proximeters creates no new interfaces or potential secondary effects beyond the new monitoring system itself. Activation and operation of the new instrumentation has no impact on the existing system and essentially creates a redundant (but local) indication system. The installation satisfies applicable design codes and criteria and presents no new failure modes or system vulnerabilities.

Since no new previously unanalyzed interfaces are established and the design of the monitoring system as described in the FSAR is maintained, this activity neither creates new accident initiators nor makes previously evaluated initiators more probable. An accident of a different type than previously evaluated in the FSAR could therefore not be created.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The new supervisory instrumentation consists of the same basic components as the existing system, but utilizes more state-of-the-art technology. The system relies on local sensors (position or vibration monitoring probes) the pumps and turbines, and signal processors in a remote cabinet. Annunciation capability is also provided, but not connected under this activity. The only interfaces established by this activity are those between the new probes/proximeters and the new monitoring equipment. New raceway is also installed for the routing of these circuits. No other SSCs are impacted. Therefore, the possibility of a different type of malfunction of equipment important to safety than previously evaluated in the FSAR could not created.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The main feedwater pump supervisory instrumentation is not addressed in any Technical specification or associated Bases. However, this activity provides additional local diagnostic capabilities to supplement the existing system. There is no reduction in current capabilities or the level of monitoring. Therefore, the margin of safety as defined in the basis for any Improved Technical Specification could not be reduced.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-08-02-01 (Increase Motor Operator Size On FWV-14 and 15)

Description

Motor operators for the main feedwater pumps' (FWP-2A and B) suction isolation valves (FWV-14 and 15) are increased in size to satisfy new, higher calculated, closing thrust requirements (405 psid) for a postulated link break. This SA/USQD applies only to this installation of larger motors operators and associated mechanical, electrical and structural changes.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The proposed modification improves valve operator capability. No significant new failure modes, effects or interfaces are created. The probability of malfunction is not increased. No changes are made to the controls, logic or method of operation. Improving the capability of the valve operators and their electrical and structural supporting equipment cannot increase accident probability. The increase in EDG load will be justified as acceptable in the EDG loading calculations. Therefore, the probability of a station blackout event is not increased. The margin of safety is not reduced and the probability of a station blackout is not increased.

   This modification does not increase the probability of a loss of feedwater, since the new operator is no more likely to spuriouly close the valve than the existing operator. Also a spurious closure of one valve does not constitute a loss of feedwater event. Therefore, previously evaluated accident probability cannot be affected by the proposed change.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Increasing the size of the valve operators only better ensures their accident mitigation function by providing adequate thrust to close the valves, in the required time, against maximum differential pressure, when required by the EFIC system in response to a line break. Required valve stroke time remains the same and is factored (with margin) into the gear ratios of the new operators. Design basis function is better ensures, therefore this improvement in response capability ensures that previously evaluated consequences are not increased.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The new operators and their electrical and structural interfaces\support functions are designed to be able to perform their design basis function of closing the valve in the required timeframe against the design basis differential pressure. The existing valves are incapable of performing this function. This design meets all mechanical, electrical and structural design criteria to ensure proper operation of the valve. The failure modes demonstrates that the probability of malfunction of the valve to close or spurious operation is not increased. Therefore the proposed modification does not increase the probability of malfunction of equipment important to safety. Mechanical, electrical and structural DIR's (including EDG loading considerations as a procedurally controlled MAR open item) demonstrate that there are no adverse effects. Design margins and criteria (electrical, mechanical and structural) are maintained and satisfied by the modification.
   Failure modes and effects analyses indicate no significant new failure modes or effects. Equipment has equal or better qualification, installation and design function capability as existing

and much better valve closing capability. Net probability of malfunction is reduced, by better ensuring the valves' safety function.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The valves, their operators, operators interfaces, electrical power distribution and the power sources are affected. However, this design meets all mechanical, electrical and structural design criteria to ensure proper operation of the valve. The failure modes demonstrates that the consequences of failure modes and effects are not changed, since the components are similar, and provide for the same functions, but with increased capabilities. Failure to perform the design basis safety function (valve closure) are not changed. Consequences of malfunction of the electrical equipment are not affected and consequences of spurious valve operation also are not changed. Therefore consequences of malfunction are not changed.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

Loss of feedwater must be considered, since this could result from spurious closure of the valves. However, this is not a newly created accident possibility. No new system interfaces are created with other systems that initiate accidents. The probability of malfunction is not increased. The valves only close to mitigate possible accident consequences. Failure modes, effects and methods of operation are unchanged. Closure time requirements are not changed. This increase in the closing capability of the valve operators and their electrical and structural supporting equipment/systems cannot create the possibility of an accident of a different type than previously evaluated.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

No new failure modes, effects or interfaces are created. The valve operators and their electrical and structural supporting equiptment/systems are capable of performing their design basis safety function. Mechanical, electrical and structural calculations also demonstrate that there are no adverse effects. Failure modes and effects are not changed. Therefore no new possibility of malfunction could be created by the modification. The new operators and their electrical and structural interfaces/support functions are designed to be able to perform their design basis function of closing the valve in the required timeframe against the design basis differential pressure. The existing valves are incapable of performing this function. The function of the valve is not changed. Also, the operation of the valve (normally open) is not changed. No new interfaces are created with other equipment important to safety. Adherence to design criteria for conduit routing ensures that no common mode failures are created. Existing failure modes of valve failing to close or spurious operation have been previously evaluated and are not new malfunctions. Therefore, the proposed modification does not create the possibility of a malefaction of a different type.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Margin of safety, relevant to the affected valves, pertains to peak clad temperature and RCS temperature and pressure since the valves must close for a main steam line break. There is no change of function, failure modes or effects. The valve operator capability is improved, to ensure function for new higher calculated maximum differential pressure. Electrical, mechanical and structural calculations demonstrate that design requirements are satisfied and there are no adverse effects. Improving the valve operators' capabilities cannot reduce the margin of safety. The valves will be better able of performing their design bases safety function.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-08-03-01 (Install Relief Valves On DHHE-1A and 1B)

Description

When the shell side of a Decay Heat Heat Exchanger (DHHE-1A or DHHE-1B) is isolated, a rise in tube fluid temperature will cause a large increase in shell pressure. Without overpressure protection, the heat exchanger could fail due to increased pressure. During normal operation, the heat exchangers are in service and the Decay Heat Closed Cycle Cooling System will accommodate any fluid expansion.

MAR 97-08-03-01 installs relief valves on the shell side of DHHE-1A and DHHE-1B. The valves will be located on the inlet piping downstream of DCV-5 (A loop) and DCV-6 (B loop). Piping to the relief valve will be 1-1/2" and the outlet will be 2". A line from the discharge side of the valves will be routed to the room sumps. The valves and upstream piping will be Seismic Class 1 and the discharge piping will be Seismic Class 3. All of the piping and components will be located in the Decay Heat Pits (Elevation 75'0").

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   Only the Decay Heat Closed Cycle Cooling (DC) System is being altered by this design change. A failure of the DC System is no an initiator of the accidents described in FSAR Chapter 14. Therefore, this change cannot initiate or change the probability of occurrence of any of the accidents previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Each loop of the Decay Heat Closed Cycle Cooling (DC) System is independent and designed to provide 100% heat removal capability during LOCA emergency conditions. The relief valves will be a component of the DC System and will not change the independence or heat removal capabilities of the system. By maintaining the heat removal capacity of the DC System the consequences of an accident do not increase.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The Decay Heat Closed Cycle Cooling (DC) System's design and construction requirements will be met for the installation of the relief valves. The relief valves and associated piping will be Seismic Class I. The relief valves are considered passive mechanical components whose failure is considered outside of the plant's licensing basis and by definition, is not credible. Therefore, this change will not affect the probability of occurrence of a malfunction of the heat exchanges or other DC System equipment important to safety.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The Decay Heat Closed Cycle (DC) System is designed to provide two entirely separate 100% capacity loops. A failure of one of the loops will not increase the consequences of an accident previously evaluated in the FSAR since the operable loop can meet the assumed heat removal requirements. Any equipment malfunction would be bounded by the loss of a 100% capacity

loop. Therefore, the design change cannot increase the consequences of a malfunction of equipment important to safety.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

There are no new credible failures of the relief valves or Decay Heat Closed Cooling (DC) System which affect the reactor coolant boundary or reactivity systems. The relief valves being installed by this modification will only affect the DC System. Actuation of the relief valve will not affect the integrity of the fuel or the reactor coolant system. Therefore, no new credible accidents of a different type are created as a result of the implementation of this design change.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The Decay Heat Closed Cycle Cooling (DC) System is designed to provide two entirely separate 100% capacity loops. Even with a failure of one of the loops the other loop can meet the assumed heat removal requirements. Any equipment malfunction would be bounded by the loss of a 100% capacity loop. Also, the relief valves are considered passive mechanical components whose failure is considered outside of the plant's licensing basis and by definition, is not credible. Therefore, the design change cannot create a different malfunction of equipment important to safety.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Per ITS 3.7.8, two 100% capacity Decay Heat Closed Cycle Cooling Water (DC) System trains are required to be operable in Modes 1, 2, 3 and 4. With the margin of safety based on two loops, a loss of an entire loop will not prevent the DC System from meeting its design function. The loss of an entire loop is the bounding design condition and any component failure is bounded by the "lost loop" failure.

This design change will not affect the redundant capability of the system. The relief valves will only actuate when an overpressure condition exist in the shell side of the heat exchanger. The new valves and piping will be designed to meet the original design and construction requirements of the DC System. The relief valves are considered passive mechanical components whose failure is considered outside of the plant's licensing basis and by definition, is not credible. Therefore, the design change does not reduce the margin of safety as defined in the bases for Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-08-06-01 (MUP-4A, 4B and 4C Non-EQ)

Description

Stated briefly, this SA addresses the jusified return of the grading of the motors for MUP-4A/B/C (main gear oil pumps for the makeup/HPI pumps) from safety-related, EQ per MAR 97-08-06-01 to the accepted pre-MAR condition of safety related, non-EQ. This is possible due to the performance of a point specific radiation calculation, M-97-0127, which documents that the area in which the motors are installed is not a radiologically harsh environment.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The operation of the main gear lube oil pumps will remain unchanged by the replacement of the 4C main gear lube oil pump motor with a circumferentially larger motor that is fully capable of performing its design basis function. The motor replacement does not change the function, design or operation of the makeup/HPI pumps; electrical characteristics of the subject motors will differ. A failure of a makeup pump's main gear lube oil pump may allow degradation of the gear assembly but can not initiate an accident. A failure of a makeup pump has been evaluated as a single failure of the ECCS which has been evaluated in chapter 14, section 14.2.2.5.3 of the FSAR. The difference in electrical loading with the replacement motor has been evaluated and is accounted for in the emergency generator calculations. The calculations assure that the emergency generator is not overloaded. The MAR provides settings for the motor overloads and motor circuit protectors which ensures that a motor fault or overload will not affect other equipment. Therefore, the replacement of the 4C main gear lube oil pump motor with a larger motor will not increase the probability of occurrence of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The primary purpose of the main gear lube oil pumps is to minimize wear on the makeup pump's gear assembly during makeup/HPI pump start. The replacement motor has not changed this function or created any new failure modes; it is a fully qualified 1E motor, capable of performing its design basis function. The effects of a main gear lube oil pump failure to start due to motor failure or stop due to control failure is no different than the existing motor's failure effects. The replacement motor for the 4C main gear lube oil pump will not change the performance of the gear assembly's lube oil system. Since the gear assembly's performance is not changed, the makeup/HPI pumps performance is not changed. Since the makeup/HPI pump's performance remains unchanged, the ability of the independent and redundant ECCS HPI trains to perform the safety function described in chapter 14 of the FSAR for makeup/HPI pumps remains unchanged. Therefore, the motor replacement does not increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The replacement motor for the 4C main gear lube oil pump is fully qualified (1E) and has the same form, fit and function as the installed motor but is circumferentially larger. The power and control circuits for the main gear lube oil pumps are presently installed and maintained as safety related circuits in accordance with the CR3 Electrical Design Criteria for Separation and Isolation.

These circuits (such as terminations) will be maintained to conform with the requirements as they exist for this circuit. The operation of the main gear lube oil pumps remains unchanged and there will be no new interfaces with other equipment or systems. Therefore, the probability of the makeup/HPI pumps or other equipment malfunctioning has not increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The replacement of the 4C main gear lube oil pump motors with a circumferentially larger qualified motor does not change the controls or operation of the main gear lube oil pumps or the makeup pumps. No additional operator action is required as a result of the 4C main gear lube oil pump motor being replaced with a circumferentially larger qualified motor. The changes in the overload and motor circuit protector settings are made in accordance with established site criteria. The possible malfunctions of the main gear lube oil pump and their affects remains unchanged with the replacement motors. Therefore, the main gear lube oil pump motor replacement will not increase the consequences of a malfunction of the makeup pumps or the makeup pump's lube oil system previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The replacement of the 4C main gear lube oil pump motor with a circumferentially larger motor only affects the makeup/HPI pumps and does not introduce any new fluid, electrical, control or instrument interfaces. The failure of a makeup/HPI pump has been evaluated in Chapter 14 of the FSAR as a single failure to the ECCS. The replacement motor will not be EQ, but calculation M-97-0127 has determined that it need not be EQ for this application. Therefore, the replacement of the 4C main gear lube oil pump motor with a physically larger motor cannot create the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The replacement of the 4C main gear lube oil pump motor with a circumferentially larger motor only affects the makeup/HPI pumps and does not introduce any new fluid, electrical, control or instrument interfaces. The safety classification of the motor is not changed and the failure of a makeup/HPI pump has been evaluated in Chapter 14 of the FSAR as a single failure to the ECCS.

Therefore, the replacement of the 4C main gear lube oil pump motor change does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

HPI

The makeup/HPI pump's lube oil system is not specifically discussed in the ITS or the ITS bases but the makeup pumps which the lube oil system supports are discussed. As long as the gear lube oil system supports the makeup/HPI pumps safety function and does not cause a change in the makeup/HPI pump's performance, the margin of safety as defined by the makeup/HPI pump's performance is not reduced. This modification does not change the lube oil system's performance since the original main gear lube oil motor for 4C is replaced with a motor which is equivalent in

form, fit and function. Therefore, the main gear lube oil pump motor replacement does not change the availability or performance of the makeup/HPI pumps, the margin of safety remains unchanged as defined in the ITS bases.

Emergency Diesel Generator (EDG)

The main gear lube oil pumps are loaded during block one of an ES actuation and therefore, can affect the EDG loading. The EDG loading calculations will ensure that any additional loading resulting from the replacement motor will not prevent the EDC from performing its intended function or exceed its rating, therefore the margin of safety associated with the EDG is not reduced.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-08-10-01 (Seismic Bracing)

Description

This MAR modifies several pieces of equipment.

DIESEL GENERATOR FUEL OIL DAY TANK A and B: The modification associated with the Diesel Day Tanks is to add some bracing material that will restrain the ends of the tanks only during a seismic event.

250/125V BATTERY A and B: The existing connections for the battery rack fail established screening criteria. Modification consists of bolting new bracing to the battery rack to prevent excessive seismic movement.

EMERGENCY DIESEL GENERATOR A and B ELECTRICAL EQUIPMENT CABINET: There is a problem with the PAX hear-here cabinets being close to the Diesel r lay cabinet. Modification consists of simply moving the hear-here cabinet. rear-here cabinet shall be relocated approximately six inches further away from cabinet.

DIESEL GENERATOR B: The modification to the emergency diesel is a minor modification to an air deflector located at the generator end of the skid.

4160V ES 3A(NORTH): Modification is to attach existing conduit to upper portion of the cabinet to eliminate the possibility of conduit hitting against the cabinet.

480V ES BUS 3A and 3B: Add trolley stops to the ends of the breaker trolleys.

LETDOWN ISOLATION VALVE TO DEMINERALIZER MUDM-1A: Provide clearan.. between the steel support plate on valve stem and the existing angle support on the wall.

AHD-1 CONTROL: This modification is to add a tubing support for some air tubing coming off the positioner valve.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The changes are minor and cannot initiate any accidents. Therefore, there is no increase in the probability of an accident. Since the changes are minor and do not affect the operation of the equipment, then the modifications will not increase the probability of occurrence of the accident scenarios alre.. evaluated in the SAR. There are no new failure modes introduced by any of these prop..d modifications. The modifications are intended to only enhance the existing designs.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   All the changes being made do not change the function, operability, or the equipment's ability to mitigate the consequences of any previously assumed accidents. Therefore, the assumptions used in the SAR remain unchanged and there is no increase in the consequences of any accident scenario as a result of any of these proposed modifications.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The changes being made do not change the function or operability of any equipment important to safety. All of the modifications are to increase the seismic ruggedness of the equipment. Except as noted, no new equipment interfaces or operating conditions are created. Therefore, there is no increase in the probability of a malfunction of equipment important to safety previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The modifications as previously explained do not change the function, operability, or the equipment's ability to respond to any previous design basis issues. Because the equipment will perform the same functions, and no new equipment interfaces are created by the proposed modifications, the assumptions used in the SAR remain unchanged. Therefore, there is no increase in the consequences for any malfunction of equipment.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The proposed modifications are minor in nature and will not introduce any new failure modes to the equipment. The associated calculations show the modifications are seismically adequate and will not fail, or cause failure of the host equipment. These calculations show that all new structural items added are within design code allowable stresses. Except as noted in Section A, the new modifications will not affect other equipment important to safety or create interfaces that could challenge a fission product barrier or fluid system boundary. Therefore, the proposed modifications cannot create the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The function, operation, and design characteristics of the equipment will not be affected by the proposed modifications. This is justified by analysis/calculations. Therefore, the proposed modifications cannot change the way equipment is designed to function, nor can the modifications induce any new malfunctions. Therefore, the proposed modifications cannot create the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The Bases of the ITS does not identify any margin of safety associated with the equipment affected by the proposed modifications. The proposed modifications to all the listed equipment are being justified by analysis/calculations to show that the modifications will enhance the seismic ruggedness of the equipment. The proposed modifications do not change the way the equipment is currently designed to operate, or function. Therefore, the proposed modifications cannot reduce any margins of safety defined in the Bases for any ITS.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-10-02-01 (Correct Seismic Information)

Description

MAP 97-10-02-01 is correcting drawings FD-302-081 sheet 1 Rev. 63 (FSAR Fig. 10-2), FD-302-651 sheet 2 Rev. 39 (FSAR Fig. 4-1), FD-302-661 sheet 3 Rev. 60 (FSAR Fig. 9-2), FD-302-681 sheet 1 Rev. 83 (FSAR Fig. 11-1), and FD-302-681 sheet 4 Rev. 65 (SAR Fig. 11-1). Calculations M97-0099 Rev. 0 and M97-0100 Rev. 0 indicates inappropriate class breaks as shown on the flow diagrams.

There are no new failure modes as a result of MAR 97-10-02-01. These changes can be grouped into three categories as follows:

1. Changes to the location of ISI Code Class breaks to be consistent with ANSI N18.2a-1975. In all instances the piping/components are moved into a higher ISI Code Class; however, because all the affected piping is small bore there is not change to the ISI/IST requirements.
2. Clarify seismic classification on a flow diagram. The actual components are supported to Seismic Class I requirements as determined by a review of MAR 86-05-08-01 and field walkdowns. This change will ensure the seismic class break is accurately reflected on the flow diagrams.
3. Correct seismic class breaks on the flow diagram. The actual components are Seismic Class I as determined by a review of Livsey drawing, design specifications, vendor drawings, and CMIS; this change will correct errors on the flow diagram.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   Moving the ISI and Seismic class breaks will not impact any accidents evaluated in the SAR. The changes to the ISI Code Classes are being done to support the requirements of ANSI N18.2a-1975 which was used to provide guidance for appropriate locations of Code Class breaks. The seismic class break changes are being done to reflect actual configuration in the plant and the original intent of the designs. Since the ISI Code Class and Seismic requirements have not been relaxed and the equipment in the plant requires no physical changes to comply with these requirements, there can be no increase in the probability of an accident as described in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   Moving the ISI and Seismic class break, will not increase the consequences of any accidents evaluated in the SAR. The proposed activity changes ISI Code Class break locations to agree with ANSI N18.2a-175 criteria and revise flow diagrams to be consistent with the Seismic design classification of the plant. There is no required physical change or testing of the affected piping/components to comply with the new requirements/corrections. Therefore, these changes have no affect to the accident analysis assumptions or results.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The proposed activity changes ISI Code Class break locations to agree with ANSI N18.2a-1975 criteria and revise flow diagrams to be consistent with the Seismic design classification of the plant. In all cases the change will put pipe/components into a higher ISI Code Class or higher Seismic class. However, there is no physical change required to the design or testing of the affected piping/components. Since no ISI Code Class and Seismic requirements have not been

relaxed and the equipment in the plant requires no physical changes to comply with these requirements, no credible failure modes are associated with this activity. This activity does not degrade piping/components and therefore, cannot increase the probability of malfunction.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The proposed activity changes ISI Codes Class break locations to be consistent with ANSI N18.2a-1975 criteria and revises the flow diagrams to be consistent with the Seismic design classification of the plant. No credible failure modes are associated with this activity and existing failure effects have not changed. Therefore, there can be no change to the consequences of a malfunction of equipment important to safety as described in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The proposed changes do not change the configuration of the plant, add any new equipment, change any procedures, or add any new interfaces and therefore cannot create a different type of accident.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The proposed activity changes ISI Code Class break locations to be consistent with ANSI N18.2a-1975 criteria and revises the flow diagrams to be consistent with the Seismic design classification of the plant. In all cases this activity will put pipe/components into a higher ISI Code Class or Seismic class. However, there is no physical change required to the design or testing of the affected piping/components. Since the ISI Code Class and Seismic requirements have not been relaxed and the equipment is the plant requires no physical changes to comply with these requirements, no credible failure modes are created. Therefore, this activity does not create a malfunction of equipment important to safety of a different type than previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

This change will not reduce the margin of safety. These changes will include piping/components into a higher ISI Code Class or Seismic class. The changes to the ISI Code Classes are being done to support the requirements of ANSI N18.2a-1975 which was used to provide guidance for appropriate locations of Code Class breaks. The seismic class break changes are being done to reflect actual configuration in the plant and the original intent of the designs.

Attachment A
Summary of Safety Evaluations

SA/US[illegible] Subject: MAR 97-10-08-01 (SW System Ultrasonic Flow Meters)

Description

The ba[illegible] overall scope of MAR 97-10-08-01 involves the addition of three ultrasonic flowmeters which replace the existing flow Annubars™ flow measurement systems. These flow measurements will fulfill the objective of establishing pump pe[illegible]formance. It should be noted that MAR 97-10-08-02 is being coordinated with this ultrasonic flowmeter installation MAR. MAR 97-10-08-02 scope of effort is to remove the existing Annubars™ from the DC System (DC-61-FE and DC-62-FE). Both MAR's are being managed together to re-establish reliable and more accurate flow measurement prior to system surveillance performance testing.

This activity will:

- Remove existing (1) SW system Barton d/p, which will be accomplished by a planned FCN, and (2) DC systems Eagle-eye d/p indicators and their associated impulse line tubing, immediately down stream of the Annubars™ root valves.
- Install clamp-on type non-intrusive, ultrasonic transducers. The piping analysis for the SW and DC system piping will be reviewed to demonstrate that there is no change to the piping system seismic integrity.
- Under a planned FCN install conduit and cable for power supply and signal cable to the electronic console units for the DC and SW system.
- The conduit, installed as a future planned FCN will have seismic anti-falldown design features.
- The clamp-on transducer and electronic consoles will be located so as to be clear of any safety related equipment to prevent damage during a seismic event.

The flow instruments meet the accuracy requirements of ASME Section XI for IST

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No

   The non safety related, nonintrusive, ultrasonic flowmeters do not have a credible mechanical failure mechanism that can result in the DC or the SW System experiencing an interruption of cooling flow to safety related components. Unlike the Annubars™ which the ultrasonic flowmeters are replacing, the ultrasonics are mounted as clamp-on flowmeters on the outside of the pipe. As a result, they will not incur flow induced vibration that could create fatigue stresses which could lead to a flow element breakage that would result in a potential restriction in the flow stream. A failure of the flowmeter to provide flow measurement readings during ASME Section XI IST pump testing is credible, although unlikely. This could lead to inaccuracies in the DC pumps surveillance testing, however, the DC pumps are redundant and a single flowmeter problem would not be able to impact both of the DC pumps. Flowmeter failures are detectable such that there is no indication upon loss of AC power to the units and an error message is displayed when diagnostics detects a problem. In addition, other system temperature instruments are available to diagnose any potential DC or SW flow degradation problems and thereby detect potential problems.

Chapter 14 of the SAR identifies several types of accident analysis associated with core and coolant boundary protection as well as standby safeguards analysis. An evaluation of these types of Chapter 14 accidents:

- Uncompensated Operating Reactivity Changes
- Startup-Accident
- Rod Withdrawal at Rated Power Operation Accident
- Moderator Dilution Accident
- Cold Water Accident
- Loss of Coolant Flow Accident
- Stuck-out, Stuck-in, or Dropped Rod Accident
- Loss of Electric Power Accident
- Station Blackout Analysis
- Steam Line Failure Accident
- Steam Generator Tube Rupture Accident
- Fuel Handling Accident
- Rod Ejection Accident
- Loss of Coolant Accident
- Make-up System Letdown Line Failure Accident
- Maximum Hypothetical Accident
- Waste Gas Decay Tank Rupture Accident
- Loss of Feedwater and Main Feedwater Line Break Accident
- Anticipated Transient Without Scram

indicated that these types of accidents are initiated by events or failures of other systems or equipment that are not directly associated with the SW or DC systems. During normal plant operation, the SW and DC systems provide a cooling water function to the Spent Fuel Pool, Decay Heat Removal Heat Exchanger, Control Complex Chillers, Waste Gas Compressors, and numerous pump motors in the MU, DC, SW, RC, EF AH, BS and DH Systems. The replacement flowmeters, because they do not penetrate the pressure boundary of any fluid system and do not communicate with any other equipment or systems, cannot create a failure in any fluid system or control system that could initiate any of the accidents evaluated in the SAR.

Therefore, the replacement of IST program measurement equipment cannot increase the probability of an accident evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

A Combination of the SW, DC, as well as the RW system, provide an overall ultimate heat sink function during accident basis events. Potential failure of the ultrasonic flowmeter electronics is credible, however, its failure is readily detectable during testing and there are no on-line interfacing connections, system flow readouts, controls, or interlock circuits that could affect the operation of the DC or SW Systems.

As a result, failure of the ultrasonic flowmeter readout will not affect the operation of the SW and DC Systems. With the systems not degraded and the redundant pumps available, there is no loss of the ultimate heat sink function and no increase in the radiological consequences of an accident described in the SAR resulting from the implementation of MAR-97-10-08-01.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

These ultrasonic flowmeters replace the Annubar™ flowmeters which had been previously considered in the design basis (pressure boundary) of the plant. The externally mounted ultrasonic flowmeters do not have failure mechanisms like the Annubar™ flowmeters. This is a result of the new ultrasonic flowmeters mounted external to the SW and DC piping. Therefore, the new flowmeters cannot increase the probability of occurrence of a malfunction of equipment important to safety as previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The nonintrusive, non safety related, ultrasonic flowmeter does not have a mechanical failure mechanism that is credible because it does not penetrate the SW or DC piping systems. Electronic readout failure mechanism is credible and as discussed previously in Section A, the failure is readily detectable and can be corrected via proper maintenance.

The ultrasonic flowmeters are used periodically to verify operability of the DC and SW system pumps and do not actuate any plant equipment or have any role in the mitigation of any other equipment malfunctions. The flowmeters cannot make site dose releases greater and do not handle radioactive fluids. Since the new flow instruments cannot affect the course of mitigation of equipment malfunctions, the proposed instruments cannot therefore increase the consequences of any malfunction of equipment important to safety.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

No new functions, protective devices, controls, or system interfaces are installed or created by the implementation of MAR 97-10-08-01. The only significant configuration differences to the plant is the addition of the permanently, externally, mounted nonintrusive, non safety related, clamp-on ultrasonic flowmeter devices to the SW and DC pump discharges instead of the intrusive Annubars™ and the use of plant non-vital power for these devices.

MAR 97-10-08-01 permanently mounts ultrasonic flowmeters to the exterior of the piping. They replace the inline Annubars™ in the DC system that are being removed by MAR 97-10-08-02. The ultrasonic flowmeter is an independent system (in that it is not relied on by Operations for plant operation) since it is used for periodic flow testing of the DC and SW pumps. Its failure would not result in degradation of these systems during testing operations and would not lead to an accident of a different type.

The DC and SW systems along with the RW system provides the function of an ultimate heat sink cooling to accident mitigating equipment. The heat sink function is provided through the SW system which provides cooling functions for several key accident mitigating components including such equipment as the RB Fan Assembly Cooling Coils, RB Ventilation Fan Motor Coolers, the Motor Driven Emergency Feedwater Pump, Control Complex Chillers, and the MU pumps. The heat sink function of the DC system is the Decay Heat Removal System (DH) Decay Heat Removal Exchangers along with other vital equipment heat loads. The SW and DC systems function as accident mitigating cooling support systems and as a closed system provide a radiological barrier between fuel cooling systems and the environment.

This MAR's flowmeters, being non-intrusive do not create penetrations that could compromise the pressure boundaries of the SW and DC System and do not introduce any new failure mechanisms to the flow measurement function. In addition, they do not create any new interfaces that could affect other equipment that could challenge either fluid system or fission boundary barriers. As a result, the ultrasonic flowmeters cannot create challenges of a different type than previously evaluated and thereby cannot create an accident of a different type than previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

This response addresses differences in failure modes from what it was before. Please refer to Part A of this USQD for discussion of what type of failure modes are the same.

The only difference to the plant configuration and to the licensing basis involves the change from intrusive Annubars™ to non-intrusive clamp-on ultrasonic flowmeters. From a piping stress standpoint, the piping has been evaluated and continues to satisfy stress analysis for its seismic and deadweight loadings and has been qualified for its application in the DC and SW Systems. As a result, this change does not introduce a different type of malfunction.

The flowmeters are not used as "important to safety' equipment and do not interface with or affect other equipment. Because the flowmeters are non-intrusive in the SW and DC fluid systems and unlike the Annubars™ which can break in the stream, there is less opportunity to fail in a different way. There are no new credible failures as a result of this modification and no different types of malfunctions of equipment than have not been previously evaluated in the SAR during normal plant operation or during accident conditions.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Technical Specification 3.7.7 addresses the operability of the Nuclear Services Closed Cycle Cooling System. The Bases assume that the SW pumps are 100% redundant, independent, and each capable of providing sufficient cooling water. 3.7.7 is applicable to Modes 1-4. According to the Bases, in Modes 5 & 6, the SW System is not required to be operable. No other specification addresses the Nuclear Services Closed Cycle Cooling System.

Technical Specification 3.7.8 addresses the operability of the Decay Heat Closed Cycle Cooling System. The Bases assume that the DC pumps and piping are 100% redundant, independent, and each capable of providing sufficient cooling water. 3.7.8 is applicable to Modes 1-4. In Mode 5, when functional testing is performed, LCO 3.4.6 (RCS Loops Mode 5, Loops Filled) is applicable. ITS 3.4.6 allows one DH train (and hence one DC train) to be operable. Therefore, testing of the DC system which would render the DC train inoperable for the duration of the testing can be accomplished within the ITS requirements.

The ITS Bases does not specifically address margin of safety for this design activity; however, it does establish the margin indirectly through the Inservice Testing Program the minimum pump performance requirements, which trend pump degradation to ensure that the required design basis accident flows are attainable for the SW and DC systems. The new ITS measurement test equipment improves the accuracy for maintaining pump degradation trending within the established performance requirements of ASME Section XI. In addition, the ultrasonic flowmeter cannot impact systems that are required for accident mitigation and as a result will not cause the Reactor Coolant System to exceed its safety limit parameters as defined in the ITS. Therefore,

this design activity does not prevent the SW and DC systems from performing their design intended functions and the margin of safety is not reduced.

Since the post modification testing for MAR 97-10-08-01 will demonstrate the ability for DC and SW pumps to provide required pump performance characteristics and provide the required flow rates, and since no part of MAR 97-10-08-01 impacted the redundancy or independence of the DC and SW pumps, implementation of this modification does not reduce the margin of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-10-08-02 (DC System Annubars)

Description

The DC System annubars removed by the MAR provide indication readout functions associated with the ISI ASME Section XI requirements which is non-safety related. The pump flow readout variable is not used by plant operations for any safety related event and is not part of any operational procedure or emergency operation procedure.

The pipe plugs that are used to maintain the pressure boundary in the piping are safety related, and appropriate for use in the 1/2" diameter weld couplings. The piping calculations associated with these lines have been reviewed to confirm that there is no adverse impact on the piping qualification.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The pipe plugs used to replace the annubars are at least equivalent to the existing annubars with regard to maintaining the piping integrity, pressure boundary, and nuclear safety requirements. The pipe plugs are designed, purchased, and installed per USAS B31.1, 1967 requirements. Pipe stress calculation M75-0004 has demonstrated that pipe stresses in the vicinity of the weld couplings are within acceptable levels. In addition, the DC system is used for accident mitigation and does not initiate any accidents. Therefore, this activity cannot increase the probability of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The modifications to the DC piping do not increase the consequences of an accident previously evaluated in the SAR. The pipe plug installations do not create any new release mechanisms, and they do not have an impact on any radiation release barriers or calculated radiological doses. The removal of the flow elements and installation of pipe plugs does not in any way affect the performance capabilities of the DC system. Therefore, there are no radiological consequences associated with these modifications, and no increase in the consequences of any accident previously evaluated in the SAR resulting from the implementation of MAR 97-10-08-02.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The pipe plugs that are used to maintain the pressure boundary in the piping are safety related and appropriate for use in the 1/2" diameter weld couplings. The piping calculations (M75-0004) associated with these lines have been reviewed to confirm that there is no adverse impact on the piping qualification. Meeting these design requirements ensures pressure boundary integrity of the modified configuration for all load cases (including seismic). Because the pipe plugs have been designed to satisfy allowable stress levels and contain no active mechanical parts, it is considered a passive component. According to the Topical Design Basis Document Single Failure Criteria, single passive failure of mechanical components (e.g., pipe breaks) are not part of the CR-3 design basis and are not assumed in the design of fluid mechanical systems at CR-3. Also, the modifications meet applicable mechanical codes and standards. Therefore, the probability of a malfunction of equipment important to safety is not increased.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Replacing the annubars with the pipe plugs will not create any new release mechanisms or impact any radiation release barriers. The plugs are designed to meet existing pipe boundary conditions, and there are no adverse effects possible due to the modifications. Therefore, the proposed activity will not increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

According to the Topical Design Basis Document Single Failure Criteria, single passive failure of mechanical components (e.g., pipe breaks) are not part of the CR-3 design basis and are not assumed in the design of fluid mechanical systems at CR-3. Also, the modifications do not create any new initiators or failure exposures. There are no new system interfaces created by this MAR. As stated in B.1, the DC system is used for accident mitigation and does not initiate accidents. Therefore, the implementation of this MAR will not create the possibility of an accident of a different type than previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The pipe plugs are designed to meet all applicable design codes, standards and quality assurance requirements. Also, single passive failure of mechanical components are not part of the CR-3 design basis and are not assumed in the design of fluid mechanical systems at CR-3. Therefore, the proposed activity does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The ITS Bases address the operability of the DC system and ensure that the margin of safety challenged or reduced in any way. The modifications described in MAR 97-10-08-02 require that the current pipe configuration with the annubars installed be changed to install the pipe plugs. The pipe plugs are designed to meet the pressure boundary requirements of the nuclear safety related piping. Therefore, there are no accident or transient barrier challenges created by these changes, and, the activity will not reduce the margin of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: T97-10-09-01 (Install MU Flow Instrument)

Description

This MAR will install a temporary, local, flow instrument to be used to measure the minimum normal MU supply flow during normal operation (Modes 1, 2, 3 and 4) and will establish an upper limit on this flow. This flow measurement function is currently being performed by reading MU-24-FI from the Control Room. This flow is controlled by MUV-30 and is referred to as minimum bypass flow around MUV-31. MU-24-FI will remain in place and will continue to be used for normal MU flow indication.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   An accident initiator of a SBLOCA is the condition of thermal cycling of the HPI/MU nozzle area. Severe and continuous thermal cycling of the HPI nozzle area could result in a crack or break in the HPI/MU nozzle area. This would be a SBLOCA. This modification will not create a condition that would cause more thermal cycles to the HPI/MU nozzle than would occur without the MAR. Therefore, this activity will not increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The HPI system is required to mitigate accidents with radiological consequences as identified above. This modification will not change the ability of the HPI system to perform its safety function. The 36 gpm maximum bypass limit is ensured by setting MUV-30 and maintaining it in that position until the HPI system is called on to perform its safety function. Therefore, the proposed activity will not increase the consequences of an accident previously evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The equipment important to safety is the HPI piping at the location of the ultrasonic detectors and the HPI/MU nozzle area. The installation of the ultrasonic transducers in the HPI piping has been seismically analyzed and determined that it will not cause a malfunction preventing the HPI system from performing its safety function.

   Thermal cycling of the HPI nozzle area will not be increased by this MAR; therefore, a malfunction of that portion of the piping is not created by this MAR.

   Therefore, the proposed activity will not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

   The HPI system is required to mitigate accidents with radiological consequences. This modification will not change the ability of the HPI system to perform its safety function.

The equipment important to safety are the HPI piping at the location of the ultrasonic detectors and the HPI/MU nozzle area. The installation of the ultrasonic transducers in the HPI piping has been seismically analyzed and determined that it will not cause a malfunction preventing the HPI system from performing its safety function.

Thermal cycling of the HPI nozzle area will not be increased by this MAR; therefore, a malfunction of that portion of the piping is not created by this MAR.

Therefore, the proposed activity will not increase the consequence of a malfunction of equipment important to safety previously evaluated in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

A break at the HPI nozzle area is analyzed in the SAR as a SBLOCA. This modification only effects that accident as an accident initiator. This modification will not create any new accident initiators. Therefore, the proposed activity does not create the possibility of an accident of a different type than any previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The modification is only associated with the HPI system. Malfunctions of the HPI system (piping breaks) were considered in the safety analysis as mentioned above. There are no other SSCs affected by this modification. The modification will not effect any other portion of the HPI system. Therefore, the proposed activity does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

The margin of safety that is to be considered here is the excess HPI flow above the minimum required amount to mitigate certain accidents. HPI hydraulic calculations performed as input to SBLOCA analysis that established Peak Clad Temperature, account for MUV-30 being throttled to a position equal to 36 gpm during normal operation. As long as MUV-30 is maintained in that position at the start of the accident mitigation process, the HPI system will be able to deliver its required flows with expected margin. Therefore, the proposed activity does not reduce the margin of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-10-11-01 (MCC Motor Circuit Protector Setpoint Evaluation)

Description

This MAR will evaluate parameters and related tolerances which affect the application of instantaneous trip (magnetic only) molded case circuit breakers for motor circuit protection at CR3. This evaluation will develop criteria for setting and testing these breakers to assure ample circuit protection without spurious tripping during normal and extreme plant conditions (such as high voltage). The MAR will increase the trip settings of the safety related ES circuit breakers (MCP) that have adjustable trips and do not meet the revised design criteria. The MAR will also address an existing spurious tripping of MUV-69 and MUV-69's sister valve MUV-62. The revised design criteria will ensure circuit breakers do not trip when motorized equipment is started by adding additional conservatism to the calculated minimum circuit breaker trip setting. The new design criteria provides for the worst case timing of the circuit breaker closure (voltage equal zero) and a starting power factor of approximately 15% which equates to a DC offset allowance of 1.6. The existing design criteria provides for a trip setting tolerance of 10% of locked rotor current while the revised design criteria will provide for a circuit breaker trip setting tolerance of 25% and a motor nominal locked rotor tolerance of 10%. A number of the existing circuit breaker trip settings meet the revised design criteria and will not be changed. In addition to the circuit breakers which will require trip setting changes, five circuit breakers and a cable will also require replacement to achieve coordination of equipment ratings. Testing will be required on five replacement circuit breakers, DHV-5 and seven safety related circuit breakers manufactured by Westinghouse to verify trip setting tolerances.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The circuit breakers probability of failure to open when operated or automatically tripped, or failure to close when operated has not been increased by increasing the circuit breakers trip setting. However, the probability of the circuit breaker failing due to spuriously tripping has been decreased since the purpose of increasing the circuit breaker trip settings is to ensure the equipment supplied by the circuit breakers is available to perform their function. The circuit breakers possible failure modes are unchanged for the different modes of concern (normal operation, accident conditions and post accident conditions). The circuit breaker's safety function is to provide power to safety related loads and a circuit breaker failure is not an accident initiator. The replacement cable's failure modes remain unchanged and the replacement cable meets all the design characteristics of the existing cable for normal, accident and post accident conditions without an increase in probability of failure. The cables are also not an accident initiator. Therefore, the MAR does not increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The revised design criteria will ensure circuit breakers do not trip when motorized equipment is started by adding additional conservatism to the calculated minimum circuit breaker trip setting. The new design criteria provides for the worst case timing of the circuit breaker closure (voltage equal zero) and a starting power factor approximately 15% which equates to a DC offset allowance of 1.6. The existing design criteria provides for a trip setting tolerance of 10% of locked rotor current while the revised design criteria will provide for a circuit breaker trip setting tolerance of 25% and a motor nominal locked rotor tolerance of 10%. Coordination of the trip settings between the upstream circuit breakers (short time trip settings) and the branch circuit's

circuit breakers with increased instantaneous trip settings is maintained and ensures that the increased trip setting does not cause the loss of other equipment due to the upstream circuit breaker tripping for a fault at the branch circuit level. The increased circuit breaker trip setting ensures spurious tripping does not occur which would cause equipment to be unavailable for accident mitigation. The replacement cable provides additional short circuit capability which ensures a circuit fault does affect other equipment. Therefore, the increased circuit breaker trip settings and replacement cable will ensure that equipment required for accident mitigation is not jeopardized and there are no increases in the consequences of an accident previously evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The MAR increases circuit breaker trip settings to ensure against unexpected circuit breaker trips, replaces circuit breakers to obtain different trip ranges and replaces a cable to increase its reliability but does not change any existing system interfaces. The purpose of the circuit breaker's automatic trip is to isolate the circuit for an electrical fault, prevent the supply bus from being impacted by the fault and limit equipment damage. Since the replacement equipment (circuit breakers and cable) does not increase the probability of the equipment failure (similar equipment to that being replaced and of common use in the plant) or cause a loss of coordination between the branch circuit's circuit breaker and the upstream's circuit breaker, replacement equipment does not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR.

The increases to the trip settings ensures the circuit breaker does not cause equipment to be unavailable for conditions other than an electrical fault and for an electrical fault the equipment is already unavailable. Therefore, the only malfunction the circuit breaker could cause is to not isolate the MCC bus from an electrical fault and cause the upstream circuit breaker to perform the electrical fault isolation. Low impedance fault currents will be isolated rapidly at even the highest trip settings and credible high impedance electrical faults which are below the threshold of the branch circuit's circuit breaker trip setting will continue to be isolated by the motor's overloads or the fault will escalate into a low impedance fault that trips the branch circuit's circuit breaker. Since increased circuit breaker trip settings will prevent equipment from malfunctioning due to an unexpected circuit breaker trip and not decrease the probability of the circuit breaker to isolate a faulted circuit, the increase in circuit breaker trip settings does not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR. The tolerances used in deriving the new trip setting criteria in this MAR adds confidence that the spurious tripping due to starting current will not occur, while still providing adequate circuit protection under normal and extreme plant conditions (reference MAR's DIR, Attachment 1). These tolerances will be further validated by the testing performed by the MAR. The circuit breaker's trip settings are also being tested in this MAR for those circuit breakers that could possibly cause a loss of coordination with the upstream feeder circuit breaker (circuit breaker's maximum available trip setting's margin is less than 200%).

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The MAR does not change the function of the circuit breakers or the single failure criteria to which the safety related system is designed to. The MAR does provide additional conservatism in the circuit breaker's trip setting to ensure a common mode event such as overvoltage will not defeat the single failure design criteria. If a circuit breaker fails to isolate a circuit fault (a second failure), then the upstream circuit breaker will isolate the supply bus from the fault and the

redundant safety related electrical bus will continue to supply the redundant equipment trains important to safety. If a circuit breaker trips (fails open), the redundant safety related equipment is available as designed to the single failure criteria. Therefore, the proposed activity will not cause an increase in the consequences of a malfunction of equipment important to safety previously evaluated in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The MAR does not create any new failure modes for the electrical system or change the function of the circuit breakers and the circuit for which the cable is being replaced. The circuit breaker trip settings are increased to ensure the circuit breaker trips only for a circuit fault and not when the equipment is started. The cable replacement is to ensure the cable has adequate capacity for the increased trip setting and does create a new failure mode. The circuit breaker replacements provide a trip range which will allow a setting that will ensure the equipment ratings are properly coordinated and do not introduce a new failure mode. Therefore, the increased circuit breaker settings along with the circuit breaker and cable replacements will not introduce the possibility of an accident of a different type previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

This MAR does not introduce any new fluid, electrical, control or instrument interfaces or increase operator burden and does not introduce any new failure modes. The function and operation of the replacement circuit breakers and cable have not been changed. The installation of the replacement cable will be in accordance with approved procedures and electrical design criteria. The circuit breakers with revised trip settings and the replacement circuit breakers will continue to isolate the ES bus from faulted equipment, limit damage to the faulted equipment and allow normal operation of the load supplied by the circuit breaker. All of the circuit breakers of this MAR will have their load functionally tested to demonstrate operability after the trip setting is changed. The circuit breaker's trip settings are also being tested in this MAR for those circuit breakers that could possibly cause a loss of coordination with the upstream feeder circuit breaker (circuit breaker's maximum available trip setting's margin is less than 200%). Therefore, the limited testing and the existing test program along with the trip adjustment mechanism's inherently reliable design will validate the circuit breaker trip settings without 100% trip setting testing. Also, the circuit breakers do not presently have a tripping problem and the increase in the trip setting will only ensure additional conservatism for the circuit breakers' safety function of providing reliable power to safety related equipment. The circuit breaker's trip settings are also being tested in this MAR for those circuit breakers that could possibly cause a loss of coordination with the upstream feeder circuit breaker (circuit breaker's maximum available trip setting's margin is less than 200%). Therefore, the increase in circuit breaker trip settings and the subsequent circuit breaker and cable replacement does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Additional conservatism in the circuit breaker trip settings bounds the worst case normal operating conditions and continues to isolate circuit faults from the 1E distribution system. Selective coordination is maintained between the branch circuit's circuit breakers and the upstream feeder circuit breakers. Credible high impedance electrical faults which are below the threshold of the branch circuit's circuit breaker trip setting will continue to be isolated by the motor's overloads or the fault will escalate into a low impedance fault that trips the branch circuit's circuit breaker. Therefore, the margin of safety is not reduced as defined in the bases for any Technical Specification since the increased circuit breaker trip settings will ensure equipment is available to mitigate an accident and no new failure modes are introduced.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-11-01-01 (Isolation Fuses For RW-63-SV)

Description

This modification performs the following activities:

1. Installs a fuse in the ESF-B Main Control Board (MCB) to isolate the non-safety related solenoid valve RW-63-SV from the safety related circuits connected to VBDP-4, breaker #8.
2. Downgrades Class 1E (B Train) cable RWF4 to Non-Class 1E Associated (X) cable. This cable is routed from the ESF-B MCB to RW-63-SV in the Auxiliary Bldg. Seawater Room. The cable has been verified as being routed in Class 1E (Train "B") raceway for the entire length and satisfies the requirements of FSAR Sections 8.2.2.12 and 8.2.2.13. In addition, this meets the CR-3 Electrical Design Criteria - Electrical Circuit Physical Separation and Cable Tray Loading criteria.

This modification will correct a design deficiency by providing Class 1E to Non-Class 1E isolation between safety related and non-safety related loads. The potential failure modes associated with the new isolation fuse are:

1. Failure of the fuse by prematurely Opening when RW-63-SV is energized.
2. Failure of the fuse to Open when a fault occurs downstream of the fuse.

If the fuse Opens prematurely when RW-63-SV is energized, it will prevent a non-safety related testing function to be accomplished. This would be readily detectable when RWP-2B failed to start. No safety related components would be affected. Therefore, this failure effect will not adversely affect the operation of the plant.

If the fuse fails to Open when a fault occurs downstream of the fuse, the result would be the loss of safety related components fed by VBDP-4, breaker #8. However, since the fuse is safety related, this is considered the only single active component failure and no additional single active failures are considered. In addition, the test switch which supplies power to solenoid valve RW-63-SV is Normally Open and is only closed to energize RW-63-SV during testing. Therefore, the failure of the fuse will not increase the probability of a malfunction of equipment important to safety.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The loads associated with vital bus distribution panel VBDP-4, breaker #8 consist of indicators associated with various safety and non-safety related systems, Main Control Board (MCB) and Remote Shutdown Panel indications, and solenoid valves for testing of the Nuclear Services Closed Cycle Cooling Pump, SWP-1B and Emergency Nuclear Services Seawater Pump, RWP-2B. Based on review of the FSAR, there are no evaluated accidents which would be initiated by failure of any load associated with VBDP-4, breaker #8. In addition, this modification provides electrical isolation which will serve to protect the safety related portions of the circuit. Therefore, this activity will not increase the probability of occurrence of an accident previously evaluated in the FSAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

This modification will provide electrical isolation between a non-safety related solenoid valve and safety related loads powered from the same vital bus distribution panel. The associated circuitry does not function to mitigate an accident nor is it credited in any accident mitigation strategy. Implementation of this modification will not affect any of the accident analysis assumptions, which, consequently, will remain valid. Therefore, the proposed activity cannot increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

This modification provides an isolation fuse between safety and non-safety related portions of the vital bus distribution panel and associated loads. Providing proper isolation of Class 1E and Non-Class 1E portions of VBDP-4, breaker #8 circuitry will protect the power supplied to other equipment important to safety, as required by the Electrical Design Criteria. As discussed in Section A, none of the failure modes associated with the fuse will increase the probability of a occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The installation of an isolation fuse will not change the function or method of performing the function for operation associated with vital bus distribution panel VBDP-4, or any of the supplied loads. The fuse will provide the required Class 1E to Non-Class 1E isolation to prevent a non-safety related load from adversely affecting safety related loads. Therefore, as discussed in Section A, none of the failure modes associated with the fuse will increase the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

This modification installs a fuse as an electrical isolation device to isolate a non-safety related solenoid valve from other safety related loads powered from the same vital distribution panel. This will correct a design deficiency and will protect the safety related loads from a potential non-safety related load fault condition. There will be no new system interfaces created by this modification. Therefore, the proposed activity will not increase the possibility of an accident of a different type than any previously evaluated in the FSAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

The installation of a fuse as an electrical isolation device does not change the failure mode or interfaces associated with the vital bus distribution panel or related loads. This modification will eliminate a potential failure mode concerning a fault condition in the non-safety related solenoid valve circuit affecting the safety related portions of the vital bus distribution panel. Therefore, the proposed activity will not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the FSAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Providing electrical isolation of a non-safety related circuit component from other safety related equipment will ensure the associated safety related functions supported by the vital bus distribution panel are not interrupted. The operation and performance of the Class 1E components will not be adversely affected by this modification. The modification will correct a design deficiency by isolating non-safety related loads from safety related loads, which are not part of the margin of safety discussed in the Improved Technical Specifications. Therefore, the proposed modification does not reduce the margin of safety as defined in the bases for any Improved Technical Specification.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-11-07-01 (CREVS Undervoltage Lockout Relays)

Description

The proposed Modification will remove the 480V Undervoltage Lockout Relay contacts from the schemes of the control complex cooling equipment (CREVs fans and Control Complex Chillers and associated pumps). Jumpers will be installed to bypass the removed relay contacts so that the equipment will not be tripped/locked out on ES Actuation. The physical change consists of disconnecting wiring from lockout relay contacts to associated terminal block, and installing jumpers between the points where the contacts were. This will not affect normal operation of the equipment; the only time that this modification will change current system operation is on ES Actuation, when the equipment will not be tripped if it is running.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The control complex cooling equipment being modified by this MAR does not initiate any of the accidents evaluated in FSAR chapter 14.2. The essential function of the cooling equipment is to maintain control complex temperature adequately for equipment operation and personnel comfort. restart of this equipment after LOCA/LOOP is required within time limits to maintain required temperatures; this function is jeopardized if locked out by "secondary" ES Actuations. EDG failure is a precursor to a SBO accident. The control complex cooling equipment was being shed and locked out for EDG load management. Since the EDG's have been uprated, and are adequate to maintain the cooling equipment running (after initial block loading of ES equipment), it is undersirable on postulated subsequent ES Actuations to shed and reload it (which is complicated in any case by restart limiting timers on the chillers). Since the Modification being performed here is not effective until after ES actuation occurs, and does not overload the EDGs, it cannot increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The control complex cooling equipment being modified here maintains control complex temperatures within required limits for equipment operation and personnel comfort. This Modification will reduce the chance that control complex temperature will exceed required limits after an accident. These loads were being shed for EDG load management; case study E97-0043A has evaluated EDG loading scenarios and confirms that the upgraded generators' load capacity will not be exceeded. Increasing the reliability of control complex temperature management will positively affect the ability of control equipment and personnel to mitigate consequences of accidents evaluated in the FSAR. EDG loading is maintained within equipment capabilities. The SA/USQD includes open items to assure procedure revisions for required actions to avoid loading sequences which could cause EDG loading problems.

   TSCRN 210 OR Deficiency Report DR98-0199 must be approved prior to ascension from Mode 5 to Mode 4. DR98-0199 evaluates operator actions and modifications described in TSCRN 210 to demonstrate that EGDG-1A and EGDG-1B are operable in Modes 5 and 4 without prior NRC approval of TSCRN 210. The Deficiency Report will maintain the assumptions of EDG loading Case Study CSE97-0046A Rev. 0. NRC approval of TSCRN 210 IS required for Modes 3, 2 and 1 operation.

Therefore, this MAR/FCN 3 cannot increase the consequences of an accident previously evaluated in the FSAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

Failure of control complex cooling equipment can contribute to increased probability of occurrence of malfunction of equipment important to safety, by exposing the equipment to temperatures above rating. Additionally, personnel exposed to high temperatures would be more prone to mistakes which could affect plant safety. This Modification will reduce the probability of both these potential malfunction modes by increasing the reliability of control complex cooling, by eliminating trip/lockout of the equipment on "secondary" ES trips. It also simplifies the equipment control schematics and eliminates circuit components which were potential sources of control failure. The equipment was tripped/locked out in original plant design for EDG load management. The EDGs have been upgraded, and calculations performed to assure that they will not be overloaded when control complex cooling equipment is kept running. Simulator exercises have demonstrated that control complex temperature management is jeopardized when the equipment is tripped by "secondary" ES actuations (after initial actuation, ES reset, and essential equipment loading per EDG load management requirements). The equipment will still trip (as before Modification) on LOOP, and require operator action to restart. The MAR will eliminate trip and lockout on subsequent ES actuations, keeping the cooling equipment in operation.

Since the reliability of equipment important to safety is improved by this Modification, and adequate EDG loading margins are maintained, the probability of occurrence of malfunction of equipment important to safety is not increased by this Modification.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

This MAR does not change the function of the control complex cooling equipment or the EDG, or the method of performing that function. The only basic plant parameters which could be affected by this Modification are control complex temperate, and EDG loading. Control complex temperature control will be improved by this Modification, and EDG loading will be maintained within acceptable limits. This will improve the reliability of equipment which limits the consequences of accidents (control complex control equipment and personnel), without reducing the reliability of the EDGs. Control schematics for the control complex cooling equipment are simplified by eliminating lockout contacts, so a potential failure mechanism for this equipment is eliminated. No new types of malfunction or failure modes are introduced, and the probability or consequences of failure of equipment is not increased. Therefore, the proposed activity cannot cause an increase in the consequences of a malfunction of equipment important to safety previously evaluated in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

This Modification has no affect on system operation until after an accident has occurred (ES Actuation). Before this Modification, on any LOOP, even without LOCA, the control complex cooling equipment would trip and require operator action to restart; this is still true. Post-accident loss of control complex cooling could cause equipment failures which could exacerbate the accident and its mitigation. This MAR increases the reliability of post-accident control complex cooling, without affecting its operation before the accident. EDG loading has been confirmed to

be within acceptable limits. Therefore, this Modification cannot create the possibility of an accident of a different type than previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

This MAR does not introduce any new fluid, electrical, control or instrument interfaces or increase operator burden and does not produce any new failure modes. The function and method of performing the function of the control complex cooling equipment or the EDGs has not been changed during any mode of operation or accident. The equipment will continue to perform its designed safety function of control complex temperature management in the same manner as before, with increased reliability in the post-accident environment. The ability of CREVs equipment to be placed in recirc mode is not affected (ref. ITS 3.7.12). This Modification only affects the shedding of the control complex cooling equipment on ES actuation with LOOP, by eliminating trip/lockout of the equipment on "secondary" ES Actuations. On ES Actuation without LOOP, equipment operation is not affected. On LOOP without ES Actuation, equipment operation is not affected. If a LOOP is experienced, and control complex equipment loaded onto the EDGs, and a subsequent ES Actuation occurs, automatic ES start of EFP-1 could overload EDG-1A; this scenario is outside CR3's design basis and is not evaluated here. In summary, the EDGs are still adequately rated for their load, and their operation or function is not changed; this document will be evaluated for appropriate procedure revisions per existing site Modification control procedures. Therefore, this activity cannot create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Proper maintenance of control complex temperature is essential to reliability of safety related equipment which must function during normal plant operation and to mitigate accidents. Personnel comfort related to temperature regulation can also affect the capability of operators to react to accident developments. The function of "CREV"s equipment required for control complex habitability (ref. ITS 3.7.12) is not affected in any mode. This Modification will increase the post-accident reliability of control complex cooling systems, without affecting operation during normal operation or LOOP. The Margin of Safety of the (upgraded) EDGs is not affected, as confirmed by Case Study to EDG loading calculations. Therefore, the margin of safety is not reduced as defined in the bases for any Technical Specification since the increased control complex cooling equipment post-accident reliability will add assurance that equipment is available to mitigate an accident, EDG reliability is not affected, and no new failure modes are introduced.

Attachment A
Summary of Safety Evaluations

SA/USQD Subject: MAR 97-11-08-01 (Molded Case Circuit Breakers FWV-29 and 30)

Description

The magnetic trip molded case circuit breaker (Motor Circuit Protector) for FWV-30 has failed. Its "sister" valve, FWV-29, has nuisance tripped on starting. This MAR will replace the failed/obsolete ITE circuit breakers in the combination starters for these two valves with new Westinghouse units with slightly higher trip range. The trip setpoints will be increased from the existing setpoints per criteria developed in MAR 97-10-11-01. These criteria for setting and sizing CR3 magnetic trip circuit breakers are intended to assure ample circuit protection without spurious tripping during normal and extreme plant conditions (such as high voltage), by providing for the worst case timing of the circuit breaker closure (voltage equal zero) and a starting power factor of approximately 15% which equates to a DC offset allowance of 1.6. The existing design criteria provides for a trip setting tolerance of 10% of locked rotor current while the revised design criteria developed in MAR 97-10-11-01 provides for a circuit breaker trip setting tolerance of 25% and a motor nominal locked rotor tolerance of 10%. Testing will be required on the replacement circuit breakers to verify trip setting tolerances.

Unreviewed Safety Question Determination (10 CFR 50.59)

1. Could the proposed activity increase the probability of occurrence of an accident previously evaluated in the SAR? No.

   The circuit breakers probability of failure to open when operated or automatically tripped, or failure to close when operated has not been increased by replacing the circuit breakers or increasing the circuit breakers trip setting. However, the probability of the circuit breaker failing due to spuriously tripping has been decreased since the purpose of increasing the circuit breaker trip settings is to ensure the equipment supplied by the circuit breakers is available to perform their function. The circuit breakers possible failure modes are unchanged for the different modes of concern (normal operation, accident conditions and post accident conditions). The circuit breaker's safety function is to provide power to safety related loads and a circuit breaker failure is not an accident initiator. Therefore, the MAR does not increase the probability of occurrence of an accident previously evaluated in the SAR.

2. Could the proposed activity increase the consequences of an accident previously evaluated in the SAR? No.

   The higher breaker trip setpoint being performed by this MAR will ensure circuit breakers do not trip when FWV-29 and -30 are started by adding additional conservatism to the calculated minimum circuit breaker trip setting. The new design criteria provides for the worst case timing of the circuit breaker closure (voltage equal zero) and a starting power factor of approximately 15% which equates to a DC offset allowance of 1.6. The existing design criteria provides for a trip setting tolerance of 10% of locked rotor current while the revised design criteria will provide for a circuit breaker trip setting tolerance of 25% and a motor nominal locked rotor tolerance of 10%. Coordination of the trip settings between the upstream circuit breakers (short time trip settings) and the branch circuit's circuit breakers with increased instantaneous trip settings is maintained and ensures that the increased trip setting does not cause the loss of other equipment due to the upstream circuit breaker tripping for a fault at the branch circuit level. The increased circuit breaker trip setting ensures spurious tripping does not occur which would cause equipment to be unavailable for accident mitigation. Therefore, the increased circuit breaker trip settings will ensure that equipment required for accident mitigation is not jeopardized and there are no increases in the consequences of an accident previously evaluated in the SAR.

3. Could the proposed activity increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The MAR replaces obsolete/failed circuit breakers with higher trip range units, and increases their trip settings to ensure against unexpected circuit breaker trips, but does not change any existing system interfaces. The purpose of the circuit breaker's automatic trip is to isolate the circuit for an electrical fault, prevent the supply bus from being impacted by the fault and limit equipment damage. Since the replacement circuit breakers do not increase the probability of the equipment failure (similar equipment to that being replaced and of common use in the plant) or cause a loss of coordination between the branch circuit's circuit breaker and the upstream circuit breaker, the replacement breakers do not increase the probability of occurrence of malfunction of equipment important to safety previously evaluated in the SAR.

The increases to the trip settings ensures the circuit breakers do not cause equipment to be unavailable for conditions other than an electrical fault (for an electrical fault the equipment is already unavailable). Therefore, the only malfunction the circuit breaker could cause is to not isolate the MCC bus from an electrical fault and cause the upstream circuit breaker to perform the electrical fault isolation. Low impedance fault currents will be isolated rapidly at even the highest trip settings and credible high impedance electrical faults which are below the threshold of the branch circuit's circuit breaker trip setting will continue to be isolated by the motor's overloads or the fault will escalate into a low impedance fault that trips the branch circuit's circuit breaker. Since increased circuit breaker trip settings will prevent equipment from malfunctioning due to an unexpected circuit breaker trip and not decrease the probability of the circuit breaker to isolate a faulted circuit, the increase in circuit breaker trip settings does not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAR. The tolerances used in deriving the new trip setting criteria in the MAR adds confidence that the spurious tripping due to starting current will not occur, while still providing adequate circuit protection under normal and extreme plant conditions. These tolerances will be further validated by the testing performed by the MAR.

4. Could the proposed activity increase the consequences of a malfunction of equipment important to safety previously evaluated in the SAR? No.

The MAR does not change the function of the circuit breakers or the single failure criteria to which the safety related system is designed to. The MAR does provide additional conservatism in the circuit breaker's trip setting to ensure a common mode event such as overvoltage will not defeat the single failure design criteria. If a circuit breaker fails to isolate a circuit fault (a second failure), then the upstream circuit breaker will isolate the supply bus from the fault and the redundant safety related electrical bus will continue to supply the redundant equipment trains important to safety. If a circuit breaker trips (fails open), the redundant safety related equipment is available as designed to the single failure criteria. Therefore, the proposed activity will not cause an increase in the consequences of a malfunction of equipment important to safety previously evaluated in the SAR.

5. Could the proposed activity create the possibility of an accident of a different type than any previously evaluated in the SAR? No.

The MAR does not create any new failure modes for the electrical system or change the function of the circuit breakers being replaced. FWV-29 and -30 circuit breaker trip settings are increased to ensure the circuit breakers trip only for a circuit fault and not when the equipment is started.

The circuit breaker replacements provide a trip range which will allow a setting that will ensure the equipment ratings are properly coordinated and do not introduce a new failure mode. Therefore, the increased circuit breaker settings along with the circuit breaker replacements will not introduce the possibility of an accident of a different type previously evaluated in the SAR.

6. Could the proposed activity create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR? No.

This MAR does not introduce any new fluid, electrical, control or instrument interfaces or increase operator burden and does not introduce any new failure modes. The function and operation of the replacement circuit breakers have not been changed. The replacement circuit breakers with revised trip settings will continue to isolate the ES bus from faulted equipment, limit damage to the faulted equipment and allow normal operation of the valves. The replacement circuit breakers will be tested to verify their tolerances, and FWV-29 and -30 will be functionally tested to demonstrate operability after the trip setting is changed. Therefore, the circuit breaker replacement and increase in circuit breaker trip do not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAR.

7. Could the proposed activity reduce the margin of safety as defined in the bases for any Improved Technical Specification? No.

Additional conservatism in the circuit breaker trip settings bounds the worst case normal operating conditions and continues to isolate circuit faults from the 1E distribution system. Selective coordination is maintained between the branch circuit's circuit breakers and the upstream feeder circuit breakers. Credible high impedance electrical faults which are below the threshold of the branch circuit's circuit breaker trip setting will continue to be isolated by the motor's overloads or the fault will escalate into a low impedance fault that trips the branch circuit's circuit breaker. Therefore, the margin of safety is not reduced as defined in the bases for any Technical Specification since the increased circuit breaker trip settings will ensure equipment is available to mitigate an accident and no new failure modes are introduced.