

Braidwood Nuclear Power Station

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UNIT 1 CYCLE 3 RELOAD

DESCRIPTION

Braidwood 1 Cycle 3 core redesign due to normal reload fuel requirements.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because as evaluated in section 3.1 of the Braidwood 1 Cycle 3 reload safety evaluation, the reload core does not impact LOCA limits. The revised Braidwood 1 Cycle 3 reload design has been verified to satisfy LOCA accident analysis limits and assumptions. The Braidwood 1 Cycle 3 reload parameters have been verified to be less limiting than the bounding values assumed in the LOCA analysis of record, and the reload core does not adversely impact the design or operation of any other plant equipment.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the method and manner of plant operation is unchanged, and the reload core's structural, thermal-hydraulic and nuclear characteristics are not significantly different from previously installed equipment.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because the Braidwood 1 Cycle 3 reload safety evaluation/safety parameter interaction list process as documented in the reload safety evaluation/safety parameter interaction list master checklists and minutes demonstrate the new key parameters of interest do not exceed their associated limits.

MINOR CHANGE MCR20-1-90-021

DESCRIPTION

This minor change replaces the Kerotest accumulator fill line valves (ISI8934A-D) with valves supplied by Anchor Darling Valve (ADV). It has been determined that past cracking of fill lines ISI69EA thru ED 1" was due to vibration caused by back flow operation through the Kerotest valve. The ADV's are not diaphragm operated and therefore no vibration will be created by back flow through these valves.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because replacement of valves will continue to allow the operation of the accumulators per UFSAR Section 6.3. Valves are qualified for use in the system, therefore no added probabilities or consequences of an accident are created.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because replacement of existing valves does not change original design conditions. Since new valves have been qualified for use, no added accidents or malfunctions are created.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because Tech Spec Section 3/4.5.1 requires all accumulators operable in modes 1, 2, & 3. Replacement of valves will preclude possible cracking of fill line which might result in loss of coolant. As a result, margin of safety will be maintained by valve replacement.

MINOR CHANGE MCR20-1-90-036

DESCRIPTION

Change setpoint of relief valve 1CV8119 from 300 psig to 230 psig by changing out spring/washer assembly. The reduction in setpoint will provide additional overpressure protection to components located on lower elevations.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the small break LOCA analysis and the failure mode and effects analysis bound the failure modes of 1CV8119.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the setpoint change is accomplished by the change out of the relief setting spring with all other parameters remaining the same.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because this valve is not discussed or defined in any basis for any Technical Specification and the new setpoint reduces the probability of failure of lower elevation components.

MINOR CHANGE MCR20-1-90-055

DESCRIPTION

Install flow control valves in the 1A lines on the operators for valves 1AF004A, B. The 1AF004A, B valves are normally open. However, during surveillance testing of the pumps, the valve on the running pump is closed. Presently, if an ESF actuation signal opens the valve, the pump will trip due to suction pressure transient. By using the new flow control valve to slow the opening time of the valve, the suction pressure transient will be reduced and the probability of a pump trip should be reduced.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because during normal operation, the AF004 valves are open and this change has no effect on valve operation. During surveillance testing, this change will allow the valve on the inoperable but running pump to respond to an ESF actuation, thereby increasing safety by making two pumps available (with only one pump available, the AF system is in a 72 hour LCOAR) instead of one. Also, Section 10.4.9.3.1 of the UFSAR requires 160 gpm to be delivered within one minute to each of three unfaulted steam generators. The testing of this change will ensure that this requirement is still met.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because installation of the Flow Control valve does not change the function of the AF004 valves. The only effect of this change is to slow the operation of the AF004 valves. When the requirements of Section 10.4.9.3.1 (160 gpm delivered within one minute to each of three unfaulted steam generators) are met by testing, no possibility for an accident or malfunction of a different type than previously evaluated can be created. The testing requirements for this minor plant change have been revised to prevent inadvertent switchover to SX suction. The possibility of a switchover to SX without pump trip has been eliminated.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because the margin of safety for the basis 3/4.7.2 will not be reduced or changed. The testing for Section 10.4.9.3.1 of the UFSAR will also ensure that the total flow from each AF pump will meet the basis of 740 gpm. Note that this change will have no affect on the pump flow rates. This change is not intended to circumvent or modify 3.7.1.2 or 4.7.1.2.1. During surveillance testing when the AF004 valve is closed, the pump associated with the closed AF004 valve will still be declared inoperable and the seventy two (72) hour LCOAR will be entered.

MODIFICATION M20-0-87-022

DESCRIPTION

Add a 14" fire protection gate valve OFP898 in series with valve OFP579 to improve maintenance capability of the fire protection system.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the system availability is increased by this change. This change is non-safety related.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the function of the system is not changed by the addition of valve OFP898 for maintenance.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because the system availability is increased by this change.

MODIFICATION M20-Q-87-030

DESCRIPTION

Add isolation valves OFP901 and OFP902 to replace the function of valves OFP515A and OFP515B.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the function of the system has not been changed.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the function of the system is not changed.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because this modification only involves isolation valve addition.

MODIFICATION M20-1-87-053

DESCRIPTION

Provide level indication for reactor cavity local level during refueling by painting a scale on the refueling cavity wall.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the scale allows local verification of refueling cavity level. It has no affect on system operation as described in the FSAR Chapter 15.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because this scale does not affect plant operation in any way. It has no affect on any chapter 15 FSAR Safety Analysis.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because this scale indication will aid in compliance of TS 3.9.10 which states that at least 23 feet of water will be maintained above the reactor vessel flange.

MODIFICATION M20-1-R7-067

DESCRIPTION

Install logic panel and system to initiate auxiliary feedwater and trip the turbine if 3/4 steam generator levels reach 3% of narrow range span below the low-low reactor protection system setpoint and power is at or above 30% as measured by turbine impulse pressure instrumentation.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the ATWS Mitigation System (AMS) is isolated from existing safety systems on input and output such that a fault on the AMS will not degrade any existing system. The system provides an additional diverse system to mitigate the consequences of an ATWS event.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because design isolates AMS from other safety systems such that failure of AMS will not degrade interfacing safety systems. Anticipated transients without trip is addressed in FSAR Chapter 15.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because AMS is isolated from existing safety systems to preclude a failure of AMS degrading a safety system. The AMS provides an additional system to mitigate an ATWS event and does not affect the margin of safety as defined in the bases for Technical Specifications.

MODIFICATION M20-1-87-073

DESCRIPTION

This modification will provide a permanent, accurate Reactor Vessel and Refueling Cavity level monitoring system through the installation of three level instrument loops for monitoring purposes. This installation will replace the existing Refueling Cavity level instrument loop and will provide level indications, Reactor Vessel low level alarm and Refueling Cavity high and low level alarms at Main Control Board 1PM06J. It will also provide a computer input for level trending purposes and a graphics display on Main Control Board 1PM06J, identifying critical elevations during refueling operations. Additionally, a handswitch on main Control Board 1PM06J for manual actuation of the containment evacuation alarm, and control switches on cabinet 1PA20JC for disabling Reactor Vessel and Refueling Cavity level alarms during normal plant operations with level instruments isolated will be provided. This modification also improves the reliability of the Residual Heat Removal system for operation by providing additional indications to ensure pump NPSH requirements are met.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the existing FSAR Chapter 15 Accident Analysis is not affected, since the non-safety related portion of the level monitoring system installed by this modification is isolated from the safety-related portion of the subject system during normal plant operations by ASME B&PV Code, Section III, manual valves and failure of the safety-related piping is bounded by the small break LOCA analysis. Also the reliability of the Residual Heat Removal System for operation as described in FSAR Section 5.4.7 is enhanced by the installation of this modification, through a reduced probability of a related malfunction of equipment important to safety i.e. RHR system pump operation.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because this modification enhances the function of the Reactor Vessel and Refueling Cavity level monitoring system, through provision of additional indications and associated alarms for refueling operations. Also, the function of the Residual Heat Removal system, as described in FSAR Section 5.4.7, is not affected by this modification. Further, modification failure modes and effects do not impact the ability of the subject level monitoring and Residual Heat Removal or associated systems to perform their intended functions. This installation is utilized only during refueling operations and other methods for verifying Reactor Vessel and Refueling Cavity levels, and RHR system pump operation, are available.

MODIFICATION M20-1-87-073 cont'd.

3. The margin of safety, as defined in the basis of any Technical Specification, is not reduced because the existing bases for Technical Specification 3/4.9.10 for Refueling Operations restrictions on minimum Reactor Vessel water level, to ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gas activity released from the rupture of an irradiated fuel assembly, are enhanced by the installation of this modification to provide a permanent, accurate Reactor Vessel and Refueling Cavity level monitoring system. Likewise, the existing bases for Technical Specification 3/4.9.8 for required Residual Heat Removal system pump operation, based on Reactor Vessel water level, are also enhanced by this modification through improved RHR system reliability for refueling operations. Therefore, the margin of safety is improved.

MODIFICATION M20-1-88-014

DESCRIPTION

Install check valve 1T0095 in the main turbine oil filter 2-inch bypass line, to prevent back flow from the oil reservoir to the oil purifier when the oil filter pump discharge valve is in the bypass mode and the pump is off.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because system reliability is not impacted and system function is improved by installation of this modification.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because no new failure modes are introduced by this modification to affect the ability of existing systems to perform their intended functions.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because this modification is non-safety related and system operation is improved by its installation.

MODIFICATION M20-1-88-030

DESCRIPTION

Install a flow meter (totalizer) on the main generator stator water tank vent line so that hydrogen leakage into the stator cooling water can be monitored. The meter will be installed in series with an existing meter (1FQIHY020). The new meter is more sensitive.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the FSAR/UFSAR does not evaluate any accidents that might occur due to this type of equipment. This modification does not change any accident analysis as evaluated in UFSAR/FSAR.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the added equipment is passive, redundant, non-safety related and is located in a non-safety related, non-seismic area. The new equipment is similar to equipment which is already installed and so no new operation modes are created.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because the system being modified does not involve or impact any Technical Specifications.

MODIFICATION M20-1-88-032

DESCRIPTION

Provide narrow and wide range computer inputs from the Post Accident Neutron Monitoring instrumentation, to satisfy the Regulatory Guide 1.97, Revision 3, requirement for printed output of the associated indications. This design change is required to meet the UFSAR, Appendix A commitment to provide computer inputs for printed output of narrow and wide range post-accident neutron indication.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased. This modification affects safety related display instrumentation through provision of non-safety related computer inputs for printed output of narrow and wide range post-accident neutron indication (as required by Regulatory Guide 1.97, Revision 3) only. The reliability of the Post Accident Monitoring System for required operation is not affected by the implementation of this design change.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because as defined in UFSAR Section 7.5.3.3.9, the transmission of required signals from Post Accident Monitoring System (PAMS) equipment for control and monitoring purposes is through isolation devices. Since no credible failure at the output will prevent the associated channel from meeting minimum performance requirements considered in the design bases, the ability of the PAMS to perform its intended functions is not impacted by the installation of this modification.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because the Post Accident Monitoring System is not specifically addressed in the Technical Specifications and this modification does not affect any safety related function of associated equipment. Therefore, the margin of safety is unchanged.

MODIFICATION M20-1-BB-033

DESCRIPTION

This modification replaced the resisting product of combustion (F.O.C.-ionization) smoke detectors above the reactor coolant pump areas with 225°F heat (thermal) detectors.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because this portion of the system is non-safety related, provides an alarm only function and is not utilized in any accident scenario.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because this system does not have any function during an accident evaluated in the FSAR and will not change or affect any previously evaluated accidents.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because the systems involved are not governed by Technical Specifications and have no impact on the margin of safety.

MODIFICATION M20-1-88-045

DESCRIPTION

Provide an audible type alarm for the station operator, in addition to each of the division low low level status lamps, for the level of NaOH solution in the spray additive tank for the CS system by connecting a common window alarm to both of the low low level switches. Move the window alarms for high low levels in the spray additive tank and high percentage of hydrogen in containment down one tile each to provide proper top to bottom sequence for the new tile.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the new alarm circuit is only a source of low energy, annunciator voltage out to a normally open level switch contact, and does not have the potential for creating or alleviating the mitigation of a LOCA.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the analysis of failure modes and effects proved that this modification was not subject to nor created any single failure event that could disable the indication for low low level or operation of the CS system and that it was not possible to create a different type of accident or malfunction of equipment.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because there never were any auto functions or operator actions for low low level status lights or a corresponding level meter reading and this modification only provides a common redundant annunciator alarm to further assure operating that the tank is being depleted during CS system design use.

MODIFICATION M20-1-88-055

DESCRIPTION

"Two-pen" recorders on Panel 1PM05J for the hot and cold leg temperature recorders of the reactor coolant system (RCS) are required to allow for a direct comparison per loop for more efficient operation.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased through a review of UFSAR section 7.2.1.1.4. Modification testing will verify proper installation and operation. No present or new occurrence or consequence was determined.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the equipment has no public health or safety implication and the seismic qualification of the instruments and panel have been unchanged.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because these recorders are not involved in or affect the margin of safety for Tech Spec 3.4.9 which describes the excessive cooldown rate of the RCS. Tavq is used in the basis of this Tech Spec not the hot and cold leg temperatures.

MODIFICATION M20-1-88-060

DESCRIPTION

Replace containment isolation valves on the post accident hydrogen monitoring system.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because none of the single failure events or design basis accidents could be affected by this modification. Chapter 15.0.1.2, 15.0.1.3, and 15.0.1.4 were reviewed.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because there are not any new failure modes created by this modification.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because this modification does not change any Technical Specification and none of the basis are changed.

MODIFICATION M20-1-88-092

DESCRIPTION

This modification reroutes the condensate drain piping from each steam jet air ejector aftercondenser through a liquid drainer to the intercondenser sump, which drains back to the main condenser. This will conserve treated condensate, relieve overloading of the turbine building floor drain system, and alleviate the problem of ammonia vapors collecting in the Turbine Building.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because this modification does not impact any safety related systems or safety related structures, and is located in a non-seismic area. Failure of the steam jet air ejector drain piping is not considered in the UFSAR.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because this modification does not impact any safety-related systems or safety related structures, and is located in a non-seismic area. No new failure effects have been determined to exist as a result of this modification.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because this modification does not impact any safety related systems or safety-related structures, and is located in a non-seismic area. No new failure mode is created by this modification. There are no interactions created by this modification that prevent any safety systems from performing their intended functions.

MODIFICATION M20-2-88-033

DESCRIPTION

This modification provides narrow and wide range computer inputs from the post accident neutron monitoring instrumentation, to satisfy the regulatory guide 1.97, Revision 3, requirement for printed output of the associated indications. This Design change is required to meet the UFSAR, Appendix A commitment to provide computer inputs for printed output of narrow and wide range post accident indication.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the post accident neutron monitoring system is not specifically discussed within UFSAR Chapter 7.0 and therefore no UFSAR changes are required. The probability was evaluated and because no change is required, no present or new occurrence or consequence was determined. Modification testing will verify proper operation.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the unchanged operation of the systems involved eliminates this possibility. The UFSAR Appendix A discussion of regulatory Guide 1.97 will be amended to document compliance.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because the post accident neutron monitoring system is not addressed in the sections reviewed, 3.3 and 3.6. In addition, this modification will not reduce any margin of safety already established. Proper installation of computer inputs to non-safety outputs will ensure the margin is maintained.

MODIFICATION M20-2-88-063A

DESCRIPTION

Installation of taps in Steam Generator Blowdown Sample lines and Non-Essential Service Water lines to allow for future installation of sample pumps and coolers to facilitate sampling during depressurization modes.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the installation of the modification will eventually allow increased capability to sample the steam generator in all modes of operation at the sample panel.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because no new failure modes are introduced by the installation of this modification. The Steam Generator sampling system is enhanced by the installation of this modification.
3. The margin of safety, as defined in the basis of any Technical Specification, is not reduced because this modification is not safety related and enhances the Steam Generator sampling system. Tech Spec. 3.7.1.4 surveillance requirements will be adhered to more easily when entire modification is completed.

MODIFICATION M20-1-89-014

DESCRIPTION

The subject modification provides a redundant, independent means of verifying Reactor Vessel Level Indication during refueling or reduced inventory conditions as required by NRC Generic Letter 88-17, "Loss of Decay Heat Removal". Inadequate determination of RCS level has been the root cause of many potentially significant loss of decay heat removal events. The modification provides indication in the control room, annunciation on low level, and a computer point.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because this modification does not affect any of the Single Failure Events or Design Basis Accidents analyzed in the FSAR. The level indicating system is used only when the plant is shutdown. The safety related piping is isolated from the non-safety related piping during normal plant operations using ASME Section III valves and the piping and components are seismically supported. In the unlikely event that the safety related piping failed during power operation, the failure would be bounded by the small break LOCA analysis (less than one square foot).
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the non-safety related level indicating system is used during refueling or whenever the RCS level is required to be lowered. Loss of the level indicating system would not prevent the systems from performing their intended function since other methods are available for verifying level and proper RHR pump operation.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because Technical Specification 3/4.9.8 requires that at least one RHR loop be in operation to ensure that sufficient cooling capacity is available to remove decay heat and maintain the RCS below 140 degrees F and ensures that sufficient coolant circulation is provided to minimize the effect of boron dilution incident and boron stratification. In as much as this modification provides a means of verifying adequate RHR pump NPSH thereby, improving RHR pump reliability/availability, the margin of safety as defined in Technical Specification is increased.

MODIFICATION M20-1-89-026

DESCRIPTION

This modification upgrades the existing RHR heat exchanger outlet temperature instrument loop to safety related and adds indication in the MCB.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because appropriate isolators will be installed to segregate safety from non-safety components and an analysis has been performed to insure the sensing integrity of the equipment. No new accident or failure modes have been identified or existing ones altered.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the appropriate isolators will be installed and an analysis has been performed to insure system and component integrity. No new accident or failure modes have been identified that have not been previously analyzed.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because the new indication added to the MCB will let the operator monitor the RHR system temperature from the control room. This will allow the operator to take the appropriate action upon recognition of a temperature deviation, which in effect increases the margin of safety due to early detection of the deviation.

MODIFICATION M20-1-89-029

DESCRIPTION

Install drain valves in each crossover loop to improve maintenance accessibility to the RCS system, and reduce exposure to radiation. As a result of reanalyzing subsystems for addition of valves, implement snubber deletion thereby reducing scope of surveillance and testing program.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because addition of drain valves is bounded by RC LOCA as analyzed in UFSAR 15.6.5. Reduction of snubbers has been analyzed such that all load combinations identified in UFSAR section 3.9 are bounded.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because this mod has been analyzed to assure all bounding design criteria have been met. No added failure types have been determined to be created.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because addition of drain valves will not impact TS 3/4.4 for operation of the RC system. For snubbers, Code case N-411 allows for alternate valves for response spectrum, resulting in fewer snubbers required without reducing the margin of safety of piping components with respect to design and operation.

MODIFICATION M20-1-89-032

DESCRIPTION

Deletion of the autoclosure interlock (ACI) function on the RHR suction isolation valves 1(2)RH8701A/B and 1(2)RH8702A/B. In place of the ACI function, an alarm will be provided on the main control board. Inputs for the alarm will be valve not fully closed (spare contacts in the limit torque operator) and RCS wide range pressure increasing (PT403/PT405).

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the RHR suction relief valves are used as a means of cold overpressure protection. The cold overpressure protection system is designed to ensure the limits of Appendix G to 10 CFR part 50 are not exceeded when one or more of the RCS cold legs are less than or equal to 350 deg F. Transient analysis were performed to determine the worst case mass input and heat input events (refer to UFSAR, Section 5.2.2.11.2). Removal of the ACI does not impact the transient analysis. However, removal of the ACI helps ensure that the RHR suction relief valves are available to mitigate potential overpressure transients. Additionally, removing the ACI reduces the potential for inadvertent isolation of the RHR system which can cause a Low Temperature Overpressure (LTOP) transient (reduced letdown combined with a loss of decay heat removal) while also isolating an overpressure mitigation path. Therefore, removal of the ACI does not involve an increase in the probability of an occurrence or the consequence of an accident previously evaluated in the FSAR. In fact, removal of the ACI has a positive impact on LTOP mitigation, thereby, reducing the probability of an occurrence of an accident.

Analyses was also performed to confirm that one RHR relief valve has the capability of maintaining the RHR system maximum pressure within code limits (refer to UFSAR, Section 5.4.7.2.3). Removal of the ACI does not affect this analysis. Should a peak pressure occur while the RHR system suction isolation valves are open, the pressure effect on the low pressure RHR system would be mitigated by the RHR suction relief valves. The deletion of the ACI feature has no effect on the ability of the RHR system to survive pressure transients when the RHR system is connected to the RCS, since the RHR suction isolation valves are slow acting and no credit is taken for their actuation. Therefore, removal of the ACI will not involve an increase in the probability of an occurrence or the consequence of an accident previously evaluated in the FSAR.

MODIFICATION M20-1-89-032 cont'd

The impact of removal of the ACI to Event V, LOCA outside containment, frequency was also considered. Analysis demonstrates that the probability of the occurrence or consequences of an accident are not increased. The dominant failure mode is rupture of the valve disc in each of the two series motor-operated valves (MOVs) in the RHR suction line when closed during normal power operation. This failure mode is independent of the ACI. Another less influential contributor to Event V frequency was found to be rupture of one valve while the other valve has failed open. The results demonstrate that, in this case, removal of the ACI is beneficial when compared to retaining it.

Analyses was performed to determine the impact of removal of the ACI on RHR system unavailability. The analysis indicates that the reliability of the RHR system is unchanged during RHR initiation and that it is improved during short and long term cooling. The ACI becomes more of a detrimental factor as the length of time in which RHR is required to operate increases. Therefore, the probability of malfunction of equipment important to safety as previously evaluated in the FSAR is not malfunction of equipment important to safety.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the effect of an overpressure transient will not change due to the removal of the ACI. The RHR suction relief valves were designed to maintain the RHR system pressure within design limits. Although the ACI isolates the RCS from the RHR suction relief valves on high RCS pressure, overpressure protection of the RHR system is provided by the RHR suction relief valves not by the slow acting suction isolation valves. The purpose of the interlocks is to assure double isolation between the RHR system and the RCS when the plant is at normal operating conditions. The interlock prevents the possibility of an Event V due to operator error.

MODIFICATION M20-1-89-032 cont'd.

Analyses were performed to demonstrate the impact of removal of the ACI on Event V frequency, RHR system reliability and overpressure transients. The analysis performed compared the results with and without the ACI. However, the results were contingent upon providing an alarm to alert the operator that a RCS-RHR series suction isolation valve(s) is not fully closed and that double isolation is not being maintained. The modification will not impact the opening circuitry, nor will it effect the MOV position indication in the control room. The setpoint for the alarm will be within the range of the open permissive setpoint pressure and the RHR system design pressure minus the RHR pump setpoint pressure and the RHR system design pressure minus the RHR pump head pressure. Operating procedures will be revised to direct the operator to take the necessary actions to close the open valve (if it is not closed), or if this is not possible, to return to the safe shutdown mode of operation. The analysis performed indicates an overall increase in safety due to the removal of the ACI, implementation of the modification, and procedural changes. Therefore, the possibility of a new or different kind of accident from any previously evaluated is not created.

3. The margin of safety, as defined in the basis, for any Technical Specification is not reduced because deletion of the ACI has no effect on the ability of the RHR system to survive pressure transients when the RHR system is connected to the RCS, since the RHR suction isolation valves are slow acting and no credit is taken for their actuation. However, removal of the ACI helps ensure that the RHR suction relief valves are available to mitigate potential overpressure transients. Additionally, removal of the ACI improves RHR system reliability. Therefore, the margin of safety is not reduced. In fact, the margin of safety is increased.

MODIFICATION M20-1-89-033

DESCRIPTION

Revise the solid state protection system to provide automatic isolation of SG Blowdown isolation valves 1SD002A-H on low-low SG level. Revise safeguards test cabinet circuits to allow on line testing of the new isolation function.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the probability of a decrease in secondary cooling events is unchanged and consequences of such events are reduced since automatic closure of the SG blowdown valves will preserve SG inventory. The probability or consequences of failure of the reactor protection system due to seismic effects is unchanged.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because redundant trains of the reactor protection system will be utilized to actuate redundant solenoids on the isolation valves. The effects of a SG sample line failure without isolation of the corresponding isolation valve and the effects of continuous sampling from all SG's during AF events has been evaluated.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because automatic isolation of SG blowdown will ensure that AF can provide sufficient heat sink to cool down the RCS as discussed in the basis for TS 3/4.7.1.2. Containment isolation function (TS B3/4.6.3) of blowdown valves is unchanged. Mitigation of accident and transient conditions (TS B3/4.3.2) is enhanced by preservation of SG inventory during AF events.

MODIFICATION M20-1-90-008

DESCRIPTION

Revise condensate piping supplying suction to the Auxiliary Feedwater Pumps in Unit 1. The significant portions of the piping revision consist of adding a loop seal to the suction header piping and adding pipe supports to seismically support the suction piping. The purpose of the modification is to return the setpoints for the AF pump alarm (low suction), trip and switchover to SX from their present conservative limits back to the Technical Specification limits.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the back-up essential service water system will supply suction to the AF pumps if a failure of the condensate suction occurred.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the revision of the condensate piping as stipulated in the modification will perform the same system function and will not introduce any new accidents or malfunctions than those already evaluated in the FSAR.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced. However, presently the setpoints for the AF pumps alarm, trip and switchover are conservatively set to prevent air induction into the suction piping. By performing this modification, the setpoint for the SX Switchover in Table 3.3-4 will be changed from its conservative limit back to the Technical Specification limit. The margin of safety (200,000 gallons of available water) as defined in the basis of Technical Specification 3.4.7.1.3 will be maintained upon completion of this modification.

NUCLEAR WORK REQUEST A47454

DESCRIPTION

Remove the close interceptor valve and load drop anticipation reference due to station desire to inhibit these function so as to eliminate the possibility of the same event as described in DVR 6-2-90-055 from occurring.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the close interceptor valve and load drop anticipation are not referenced in the accident section of the UFSAR and therefore will not have an affect.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the reliability of systems required for safe shutdowns described in the FSAR are not affected as no functional changes are required to these systems.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because there are no Tech Specs affected by this Nuclear Work Request.

SPECIAL PROCEDURE SPP 91-012

DESCRIPTION

This flush procedure will clear all high pressure nitrogen piping in the Aux building in order to remove all traces of oil. This oil was injected into the line when the H.P. nitrogen compressor failed.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the only equipment important to safety as evaluated in the UFSAR is the SI accumulators and certain portions of the low pressure nitrogen system. The SPP provides for temporary nitrogen to the SI accumulators during execution of this flush. The low pressure nitrogen system will remain fully operable during the flush.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because although the SI accumulators will be pressurized through a temporary nitrogen supply, the function will not be changed.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because full function of the SI accumulators and low pressure nitrogen system will be maintained and monitored during the flush procedure.

SPECIAL PROCEDURE SPP 91-021

DESCRIPTION

The auto swapover of the Turbine Driven FW PP to its standby oil pump on low oil pressure does not work. SSCR 91-002 raised the setpoint in order to allow the swapover to occur fast enough to prevent a FW PP trip. This test defeats the automatic electrical swapover (which has been proven to work) in order to test only the low oil pressure swap. The Turbine Driven FW PP will be latched and idling during this test. The running lube oil PP C/S is placed in pull out. A satisfactory test results in the standby pump start without FW PP trip, otherwise the FW PP trips with no effect on the plant.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because an idling FW PP will be tested. The test has no effect on the speed control circuit of the FW PP. The test only affects the ability of the idling pump to remain latched. The test affects only one Turbine Driven FW PP at a time, during a period when it is not supplying water to the S/G's. The test has no direct effect on any of the protective measures used to mitigate the consequences of this accident. The test defeats the electrical auto start of the standby FW PP lube oil PP, in order to test its low oil pressure auto start. The electrical auto start is reconnected per the test before its completion. The failure mode would be unchanged because the loss of a lube oil pump will trip the Turbine Driven FW PP if the standby lube oil pump fails to start in time. This test only deals with an idling pump which will have no direct effect on the unit operation.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the test will prove that a design back up feature to prevent a Turbine Driven FW PP trip is now working as designed, or requires rework. This will reduce the possibility of a FW PP trip.
3. The margin of safety, as defined in the basis of any Technical Specification, is not reduced because in this test, no Tech. Spec was affected.

TEMPORARY ALTERATION 91-0-010

DESCRIPTION

Install a temporary hose between N₂ tank ONTO1T and a connection in line ONTOC1 1/2 inside the Turbine Building. Temporary alteration will supply N₂ until failed underground piping is fixed.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the N₂ system does not impact any accident evaluated in the UFSAR.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the temporary hose will function the same as the original piping. The N₂ system is non-safety related and the low pressure supply is not discussed in any detail.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because it is not impacted by the low pressure N₂ system.

TEMPORARY ALTERATION 91-0-011

DESCRIPTION

Install a temporary hose between a high pressure N₂ Tanker and a connection in line ONTOC1 1/2 inside the Turbine Building. This temporary alteration will supply high pressure N₂ to pressurize the Unit 1 SI accumulators to return Unit 1 to service. Modification M20-0-91-001 is incomplected due to underground piping which failed its pneumatic test.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because accumulators will be fully pressurized and operable during modes 1, 2, 3. This Temporary Alteration will supply N₂ the same as the original system.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the nitrogen system performs no safety function and is non-safety related. However, nitrogen is used to pressurize the SI accumulators and the back-up bottle rack. The accumulators must be available in mode 3. Presently, Unit 1 is in mode 5. Therefore, they must be pressurized to their Tech Spec limits before the Unit can become operable. Since the SI accumulators are a passive system, once they are pressurized, the nitrogen is no longer required except for minor adjustments which can be accomplished by the bottle rack. If accumulator pressure is lost, the Unit enters a LCO. Therefore, once the accumulators are pressurized, no accident or malfunction different than those previously evaluated can occur.
3. The margin of safety, as defined in the basis of any Technical Specification, is not reduced because the SI accumulator pressure is as outlined in the Tech Spec. The pressure limits of the SI accumulators are not changed or affected by this temp alt. The accumulators will be pressurized as normal and the bottle rack system will still act as back-up.

TEMPORARY ALTERATION 91-0-021

DESCRIPTION

This alteration will jumper the open limit switch on OSX063A to allow operation of the OA VC chiller in remote.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the jumper is backed up with internal chiller safety features which will protect the machine. The jumper does not affect any system that controls off-site dosage. Even if this chiller trips on high condenser pressure, the redundant chiller is sized large enough to carry the load.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the jumper is allowing the system to function in a normal manner with the internal safety features of the chiller being utilized.
3. The margin of safety, as defined in the basis of any Technical Specification, is not reduced because even after the jumper is installed, the chiller will be operable and operating in its normal configuration.

TEMPORARY ALTERATION 91-1-001

DESCRIPTION

Temporary Alteration to allow the use of hose station 19 to be used as a water source for temporary outage structures sprinkler systems, in addition to performing its design function of hand fire protection.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because fire protection has no safe shutdown function as set forth in the fire protection report referenced by section 9.5.1 of the UFSAR.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because fire protection has no affect on safe shutdown systems but serves to mitigate the consequences of a fire.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because fire protection is not governed by the Technical Specifications. The level of fire protection is not lowered.

TEMPORARY ALTERATION 91-1-002

DESCRIPTION

Temporary Alteration to allow the use of hose station to be used as a water source for temporary outage structure sprinkler system in addition to performing its design function of hand fire protection.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because fire protection has no safe shutdown function as set forth in the fire protection report, as referenced by section 9.5.1 of the UFSAR.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because fire protection has no affect on safe shutdown systems, but serves to mitigate the consequences of a fire.
3. The margin of safety, as defined in the basis of any Technical Specification, is not reduced because fire protection is not governed by the Technical Specifications. The level of fire protection is not lowered.

TEMPORARY ALTERATION 91-1-009

DESCRIPTION

Disconnect the front connector from data A 1PI02JA and detector/encoder A411.CBB-8 K02 rod. The data A coil A3 is supplying erratic information to the detector/encoder card which is then decoding this intermittent erratic data as an indication of 6 steps. When this 6 step code is combined with the correct data B information an urgent alarm is generated causing the display to indicate rod bottom. This problem only happens about once per day and lasts for about 5 minutes. Disconnecting the detector from the card will cause the data A failure on the K02 rod which then goes to 1/2 accuracy on the data B information.

SAFETY EVALUATION SUMMARY

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the initiating events will not be changed from those in the analysis since the DRPI indication will still be capable of rod position determination within ± 12 steps. The consequences are not increased since the change is within the bounds of the analysis. The disconnection does not effect the reactor trip signal generation or analysis of the accident consequences.
2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because no plant equipment is being operated in a manner different from its normal operation as designed. The DRPI system was designed with 2 data cabinets to allow for a failure of one data train. The DRPI system then goes to 1/2 accuracy on the remaining data cabinet train data. This change is bounded by the analysis. The DRPI system is a passive system and has no active role in moving rods.
3. The margin of safety, as defined in the basis, for any Technical Specification, is not reduced because normal DRPI accuracy with both data A and B is ± 4 steps. With data B only, the accuracy is ± 10 , -4 steps. This is within the ± 12 steps of the LLO. The K02 fuel assembly is also an incore detector instrumented location.