VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

March 3, 2000

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Serial No.	00-091
NAPS/JHL	
Docket Nos.	50-338
	50-339
License Nos.	NPF-4
	NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT NOS. 1 AND 2
SUMMARY OF FACILITY CHANGES, TESTS AND EXPERIMENTS

Pursuant to 10 CFR 50.59 (b)(2), enclosed is a summary description of facility changes, tests and experiments, including a summary of the safety evaluations, that were implemented at North Anna Power Station during 1999.

If you have any questions, please contact us.

Very truly yours,

W R Matthews

W. R. Matthews
Site Vice President

Enclosures

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IE47

SAFETY EVALUATION LOG
JCOs
1999

S.E. #	Unit	Document	System	Description	SNSOC Date
99-SE-JCO-01	1,2	JCO C-99-01	HV	Safeguards Ventilation Flow Secures the following fans due to leak-by in each area: fuel bld. exhaust fans (1-HV-F-7A, 7B), aux. bld general exhaust fans (1-HV-F-9A, 9B, 9C), & U2 safeguards area supply fan (2-HV-HV-4)	9-05-99
99-SE-JCO-02	1,2	JCO C-99-02	HV	Primary Ventilation Alignment Following a CDA to Assure Filtration of ECCS Leakage	9-08-99

99-SE-JCO-01

Description

JCO C-99-01

The JCO proposes that the Aux Building General Fans, Fuel Building Fans, and Unit 2 Safeguards Supply Fans be secured during unit operation to ensure that Safeguards air is passed through the charcoal filters in the event of an accident.

Summary

Testing in the plant has identified several dampers which are not sealing tightly in the Aux Building General and Fuel Building flowpaths. Because of the possibility for bypass flow of Safeguards air around the charcoal filters during an accident, a JCO has been prepared to control the operation of certain fans. The JCO proposes that the Aux Building General Fans, Fuel Building Fans, and Unit 2 Safeguards Supply Fans be secured during unit operation to ensure that Safeguards air is passed through the charcoal filters in the event of an accident.

With the fan flow secured, temperatures in the Aux Building, Fuel Building, and Safeguards Building can change according to outside ambient conditions and equipment loading inside. Ambient temperatures are recorded by operators on rounds periodically. Temperatures outside of normal bounds will cause the operator to take actions prescribed by existing procedures to correct the temperatures or to declare certain equipment inoperable. This will protect equipment and ensure safe unit operation. Also, Engineering Transmittals CEE 94-004 and 94-006 documented evaluations of Safeguards equipment performance with a total loss of ventilation and concluded that Safeguards equipment would function correctly in all conditions including accident conditions. Operation in this alignment will allow pump heat to increase the temperature of the air in Safeguards and, consequently, reduce the relative humidity of the air that will pass through the charcoal filter. This will ensure acceptable operation of the charcoal filter.

Operation of the ventilation system as proposed in this JCO creates no unique precursors or precursor events for any Chapter 15 accident. Periodic monitoring of ambient temperature will provide protection for equipment and systems from environmental challenges. Safeguards equipment required for accident mitigation can withstand normal and post-accident operation without ventilation. Therefore, implementation of this JCO does not increase the probability of occurrence of an accident or malfunction of equipment previously analyzed.

Operation of the ventilation system as proposed in this JCO will ensure that air flow from Safeguards passes through the charcoal filters prior to being released from Vent Stack B. No motive force will be available to cause Safeguards air to bypass the charcoal filters. The consequences of failure of either the equipment located in the Safeguards Building required to respond to an accident or the charcoal filters are not increased due to the ventilation alignment proposed by this JCO. The ventilation alignment ensures that safeguards air will be passed through the charcoal filter. Discreet failure of any safeguards equipment or of the charcoal filter carries only its own consequences. Safeguards air will still be passed through the charcoal filter regardless. Therefore, implementation of this JCO does not increase the consequences of an accident or malfunction of equipment previously evaluated.

Operation of the ventilation system in the proposed configuration creates no unique conditions that can lead to precursors or precursor events for accidents. Area temperatures are monitored by operators and actions can be taken in accordance with existing procedures to mitigate high or low temperature conditions. This prevents environmental challenges to equipment. Engineering Transmittals CEE 94-004 and 94-006 documented evaluations of Safeguards equipment performance with a total loss of ventilation and concluded that Safeguards equipment would function correctly in all conditions including accident conditions. Operation in this alignment will allow pump heat to increase the temperature of the air in Safeguards and, consequently, reduce the relative humidity of the air that will pass through the charcoal filter. This will ensure acceptable operation of the charcoal filter. Therefore, implementation of this JCO does not increase the probability of occurrence or consequences of an accident not previously analyzed.

Fans will be allowed to be started to support required testing provided administrative controls are in place to ensure the fans will be secured within one hour following a DBA (e.g. LOCA). NA&F has confirmed that no filtration is necessary for the first hour of an accident due to the positive pressure in the control room (i.e. no dose to the control room operators will occur during this time frame).

No changes are required to any part of the Technical Specifications or their bases as a result of this JCO.

Therefore, an Unreviewed Safety Question does not exist.

99-SE-JCO-02

Description
JCO-C-99-02 – Primary Ventilation Alignment Following a CDA to Assure Filtration of ECCS Leakage.
1&2-E-0 – Reactor Trip or Safety Injection, 1&2-ES-1.3 - Transfer to Cold Leg Recirculation, 0-AP-36 – Seismic Event
Station Procedures 1& 2-ES-1.3, "Transfer to Cold Leg Recirculation" and 1&2-E-0, "Reactor Trip or Safety Injection" will be revised to secure all primary ventilation fans (supply and exhaust) and place each exhaust system in "Bypass" with the exception of the Unit 1 and Unit 2 Safeguards, and the Aux. Building Central area, which will all be placed in the Filter Position. The JCO establishes compensatory measures that provide reasonable assurance that the Auxiliary Building Central exhaust system can be manually aligned to the filter position at all times. These compensatory measures will require the power supply and instrument air to the damper controls to be available. The damper controls will also be verified to be operable following a seismic event.

Summary
BACKGROUND
The UFSAR describes the operation of each of the primary ventilation areas to include ability to selectively pass the exhaust systems through the Iodine Filter Loops as it becomes necessary for decontamination. This includes exhaust from the Auxiliary Building (Central and General Exhaust), Decontamination and Waste Solids Building, Fuel Building, Containment (Shutdown Unit) and Engineered Safety Features Areas. During a design basis accident, the areas that require filtration include the Auxiliary Building Central, and the Engineered Safety Features Areas. Troubleshooting of the Primary Ventilation System (to be documented in ET SE-99-051) identified that various dampers for the Fuel Building, Auxiliary Building, and Unit 2 Safeguards leaked by. This leak-by potentially creates a flow path that bypasses the filter assembly following an accident (LOCA). The most conservative alignment of ventilation systems to ensure that exhaust flow will not bypass the charcoal and HEPA filter assembly is to secure all systems that are not aligned to the filters.

PROPOSED ACTIVITY
EOP procedure revisions are proposed that require alignment of the Aux. Building Central and Safeguards Area ventilation exhaust from these areas through the Filter Loops during a design basis LOCA. Two Safeguards and one Aux. Building Central fan will be in operation. The proposed JCO establishes compensatory actions to ensure the Auxiliary Building Central Ventilation dampers can be aligned to the filters at all times.

For other areas, the associated ventilation fans will be secured during the accident, and their dampers will be placed in the Bypass position. Temperatures in these areas will change according to outside ambient conditions and equipment loading when their respective ventilation fans are secured. Ambient temperatures in these areas are recorded by Operations on rounds periodically. Temperatures outside of normal bounds will cause the Operator to take actions prescribed by existing procedures to correct the condition or declare the associated equipment inoperable. The ambient temperature monitoring instrumentation will still be available.

FAILURE MODES
Failure of the activity is considered failure of a damper in a non-ESF area to position to the Bypass mode with its associated fan secured. If this were to occur, the combined flow provided by the two operating Safeguards ventilation fans and one Aux. Building Central fan would be adequate to meet TS flow requirements and maintain the Safeguards area in a vacuum.

UNREVIEWED SAFETY QUESTION DETERMINATION
Operation of the ventilation system as proposed in this JCO and EOP revisions create no unique precursors or precursor events for Chapter 15 accidents. The proposed JCO and EOP changes do not change the

intended operation of the charcoal filter bank or equipment required for accident mitigation. The EOP procedure revisions are to ensure flow from ESF areas does not bypass the Iodine Filter Loops due to potential leakage past system dampers. Non-ESF area temperatures are monitored by operators, and actions can be taken in accordance with existing procedures to mitigate high or low temperature conditions to prevent environmental challenges to equipment. The ESF Area ventilation system will continue to receive its automatic swap-over to the Iodine Filter Loops. Thus, any leakage of radioactive materials from ECCS equipment in the pump room following a LOCA will be filtered prior to reaching the environment, and the margin of safety as defined in the TS bases is not reduced. Current accident analyses do not take credit for filtration of ECCS leakage for the first hour of the accident. Since all equipment manipulations are performed from the control room, the one hour limitation does not impose a significant challenge to the operator. For these reasons, an unreviewed safety question does not exist.

Since the activity will ensure the design basis assumptions are satisfied by eliminating potential filter bypass flow paths and ensuring filtration of Safeguards ventilation exhaust during a design basis accident, the activity should be allowed.

SAFETY EVALUATION LOG
MODIFICATIONS
1999

S.E. #	Unit	Document	System	Description	SNSOC Date
97-SE-MOD-34	2	DCP 97-003	CC	Component Cooling Heat Exchanger Replacement	11-6-97
98-SE-MOD-21	1,2	DCP 98-004		Fuel Assembly Repair	9-10-98
98-SE-MOD-26	1,2	DCP 98-003		Replacement of deteriorated 4" diameter sheathed 316L stainless steel (SS) piping with high corrosion resistant alloy AL-6XN steel (6% molybdenum SS).	11-5-98
98-SE-MOD-27	1,2	DCP 98-005		Installation of Standpipe Piezometers at the Main Dam	11-5-98
99-SE-MOD-02	2	DCP 98-157	CC	Component cooling water containment return cross tie. Installs a 6" cross-tie between the 18" return headers.	3-11-99
99-SE-MOD-09	1,2	DCP 99-005		Seismic restraint of panel 1-EI-CB-08B & 2-EI-CB-08B with adjacent panels	7-8-99
99-SE-MOD-11	2	DCP 97-013	FH	Fuel Handling Manipulator Crane Electrical Upgrades	7-15-99
99-SE-MOD-12	1,2	DCP 99-119; F.C. for DCP 98-130 ET 99-034 1&2-OP-32.3 1&2-AR-32 1&2-ICP-BD-G-001 1&2-MOP-32.4	BD	Blowdown system upgrade to include Y2K readiness and human performance improvements. In addition, adds the capability for overriding system trip signals from specified transmitters.	7-29-99
99-SE-MOD-16	2	DCP 97-008 UFSAR FN 99-018		Main generator redundant protection & negative sequence detection / alarm	8-5-99
99-SE-MOD-18	1,2	DCP 99-137, 99-138	SI	Low Head SI Vent Valve Addition – a new high point vent will be installed on the suction line to the "A" LHSI pump	8-24-99
99-SE-MOD-21	1,2	DCP 99-145 (U2)		Permanent installation of thermocouple cards into 2-MUX-21A (makes TM N2-1128 a permanent mod).	8-31-99
99-SE-MOD-22	1	DCP 99-133, 99-134		Installs cross tie lines between the chilled water system & the bearing cooling system at the generator leads cooler & will tie into the chilled water supply & return lines for the steam chiller	9-07-99

97-SE-MOD-34

Description

The purpose of design change package (DCP) 97-003 is to the restore original capacity of the Unit 2 Component Cooling Heat Exchangers (CCHXs) by replacing them utilizing corrosion resistant material (Titanium) tubes.

Summary

The CCHXs have experienced tube leakage due to microbiologically induced pitting corrosion. Leaking tubes have been plugged, but a significant number of tubes exhibit evidence of pitting corrosion and could develop leaks in the future. The purpose of DCP 97-003 is to restore the original design capacity of the Unit 2 CCHXs by replacing them utilizing corrosion resistant titanium tubes.

The replacement does not involve an unreviewed safety question:

The Component Cooling Water System (CCWS) is an intermediate cooling system that transfers heat from heat exchangers containing reactor coolant or other radioactive liquids to the Service Water (SW) System. The design basis of the CCWS is a fast cooldown of one unit while maintaining normal loads on the other unit. The CCWS is not a system that functions to mitigate a design basis accident (DBA) or presents a challenge to the integrity of a fission product barrier. Therefore, the probability of occurrence or the consequences of an accident previously analyzed in the UFSAR will not be increased.

CCWS serves no accident mitigation function. Replacement of one CCHX at a time will leave three CCHXs operable which is enough for the CCWS to perform its design function. Therefore, consequences of accidents previously analyzed in the UFSAR will not be increased. Replacement of the CCHXs will be performed within the requirements of Technical Specification 3/4.7.3.1.

Replacement CCHXs will be furnished with corrosion resistant welded titanium tubes ASME SB-338 Gr. 2 instead of welded stainless steel tubes ASTM-304L in the existing CCHXs. The replacement heat exchangers have been designed for the same heat loads and flow rates as the existing CCHXs, therefore, CCHX thermal and hydraulic performances are not affected by this replacement. Note also, that the new heat exchangers are interchangeable with the existing ones, i.e., all nozzles and supporting interfaces match up with the configuration of the existing heat exchangers. This will minimize the required replacement work. Table 9.2.5 of the UFSAR will be revised to incorporate the tube material change. The replacement of the CCHXs will increase the reliability of the heat exchangers, therefore, it will decrease the probability of occurrence of equipment malfunctions (CCHX tube rupture) previously analyzed in the UFSAR.

Lifting and rigging of the new CCHXs and old (existing) ones, concrete blocks above the heat exchangers and other loads in excess of 2000 lbs will be guided by appropriate station procedures and NUREG-0612 "Heavy Loads Program".

Neither the replacement nor the activities required to implement it will create the possibility for a malfunction of equipment of a different type than was previously evaluated in the UFSAR.

One CCHX will be replaced at a time. The replacement will not reduce the margin of safety of the CCWS as described in the Technical Specifications since it does not reduce the number of heat exchangers available to meet design heat transfer requirements per Technical Specification Bases Section 3/4.7.3.1 and 3/4.7.3.2.

98-SE-MOD-21

Description
DCP 98-004, "Fuel Assembly Repair".
Westinghouse Vendor Procedure STD-FP-1998-8173 Rev. 0, "North Anna Units 1 and 2 Fuel Reconstitution using MFRS".

DCP 98-004 describes the reconstitution of fuel assemblies following N1C13 shutdown. Reconstituting fuel assemblies, also known as fuel repair, is the process of removing fuel rods and replacing them with solid stainless steel filler rods. North Anna Vendor Procedure STD-FP-1998-8173 will control the performance of all fuel repair work.

Summary
Fuel reconstitution as described in DCP 98-004 and as performed in vendor procedure STD-FP-1998-8173, "North Anna Units 1 and 2 Fuel Reconstitution using MFRS (Multipurpose Fuel Repair System)" is the process of replacing fuel rods in a fuel assembly with solid stainless steel filler rods. This will enable the fuel assembly to be considered for use in subsequent reload core designs whereas fuel assemblies with known defective fuel rods, by administrative policy, cannot be used in subsequent reload cores.

The in-core use of fuel assemblies reconstituted with filler rods is described and allowed in Sections 4.2.1.2 "Design Description", 15.4.1.5 "Impact of Fuel Reconstitution", and Table 4.2-2 of the North Anna UFSAR and Section 5.3.1 "Fuel Assemblies", of the Technical Specifications for both North Anna Unit 1 and Unit 2. However, the descriptions of reconstituted fuel in the UFSAR and the SER for T.S. 5.3.1 (but not T.S. 5.3.1 itself) include the replacement of only failed fuel rods with filler rods. If deemed necessary, it may be desired to remove a non-failed fuel rod from a fuel assembly. One example of this is that during the reconstitution of an assembly with a broken rod, it may be required to remove an adjacent non-failed fuel rod in order to use a fiberscope to verify broken rod removal tool engagement on the broken rod. It may not be prudent to place the non-failed rod back in the fuel assembly, as it may be susceptible to fuel rod fretting as a consequence of inadvertent grid cell damage during use of the fiberscope. Fuel assemblies that have had non-failed or undamaged fuel rods replaced with filler rods will be restricted from in core use until such time as the appropriate licensing issues can be addressed. Reload cores using reconstituted fuel assemblies continue to require cycle specific evaluation to confirm that the exact configuration of the reconstituted assemblies do not introduce a change in radial gradients in the flow and enthalpy distribution that could invalidate the applicability of the CHF correlation. It is also confirmed that DNB analysis modeling with a regular fuel assembly bounds the reconstituted fuel assembly. Note that fuel assemblies that have been repaired but continue to contain 264 fueled rods meet the UFSAR and Technical Specifications definitions of fuel assemblies, not reconstituted fuel assemblies.

Recent experience with broken rods indicates that access to both nozzles is required to perform successful on-line reconstitution. Therefore, to perform reconstitution operations the Westinghouse MFRS is required. The MFRS allows access to both the top and bottom nozzles of the fuel assembly. The installation and removal of all equipment required for reconstitution will be controlled by STD-FP-1998-8173. The MFRS is not seismically qualified, and constitutes a heavy load. Calculation SEO-1374 Rev 0, "MFRS Elevator Drop Analysis" evaluates the consequences of the MFRS dropping into the cask area floor and/or tipping onto the fuel storage racks. In all instances, existing UFSAR accident analyses bound the structural and radiological consequences of impact of the MFRS on the fuel storage racks or on the cask area floor. Furthermore, no portions of the MFRS will be lifted over safe shutdown or decay heat removal equipment. Lifts over irradiated fuel in the spent fuel pool are not possible, and administrative controls will be in place to preclude the presence of a loaded dry storage cask in the load path. Therefore, movement of the MFRS elevator upper support structure does not present a significant safety concern with respect to NUREG-0612 since the potential for dropping a heavy load is considered to be acceptably small.

The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased as a result of this change. The assumptions used in the analysis for the fuel handling accident outside containment remain bounding for handling irradiated fuel in the MFRS. All fuel handling will be performed in accordance with fuel handling procedures. The MFRS incorporates electrical and mechanical stops that prevent a fuel assembly from being raised to less than 7 feet below the pool's low level alarm elevation. This will assure that a minimum of 7 feet of water shielding exists over an irradiated fuel assembly in accordance with the criterion from UFSAR Sections 9.1.4.6.4 and 12.1.2.5 with the MFRS elevator in the full up position. The handling of fuel assemblies or individual fuel rods can only be accomplished with the fuel at the approximate height of fuel in the storage racks (MFRS elevator full down). The procedure requires and verifies that fuel rod handling devices, fuel rod handling tool and internal fuel rod collet tool, shall be rigged so as not to allow any portion of a fuel rod to come within 7 feet of the water surface. This limits the upward travel of the fuel rod handling tool in case of an inadvertent lift. Because of these procedural and physical limitations, an individual fuel rod cannot be raised to an unsafe elevation when using the individual fuel rod handling tool.

Reconstituted fuel assemblies meet the same design criteria and requirements and perform the same function as non-reconstituted fuel assemblies with similar operating history. Fuel handling interfaces for reconstituted fuel assemblies do not change as a result of this activity. Therefore, no mechanism is introduced which would increase the probability or consequences of a Chapter 15 accident. The impact of using solid stainless steel filler rods on nuclear performance is assessed during the reload design process to ensure that peaking factor limits are not violated. These assemblies are evaluated in the same manner as non-reconstituted fuel assemblies during the reload design process to ensure that none of the reload limits are violated. Therefore, the use of reconstituted fuel assemblies will not increase the probability or consequences of any of the UFSAR Chapter 15 accidents.

The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not increased. Fuel reconstitution is performed in the MFRS, in the spent fuel pool cask area using hand tools and a small capacity hoist. Only one fuel assembly will be handled at any one time, thus the consequences of an accident are bounded by the fuel handling accident outside containment as described in Section 15.4.5 of the UFSAR.

The margin of safety as defined in the basis for any Technical Specification is not reduced by the repair process or by the use of repaired fuel assemblies. The safety and design limits will not change as a result of using reconstituted fuel. All safety and design limits will continue to be confirmed as part of the reload safety evaluation process. The fuel assemblies are designed so that reconstitution is possible. Fuel repair procedures will require the mechanical stop to be installed whenever irradiated fuel is handled in the MFRS to prevent lifting the fuel assembly too close to the surface of the SFP. All fuel handling will be performed in accordance with site procedures.

98-SE-MOD-26

Description

The scope of DCP 98-003 includes replacement of deteriorated 4" diameter sheathed 316L stainless steel (SS) piping with high corrosion resistant alloy AL-6XN steel (6% molybdenum SS).

Summary

Addendum 1 to Specification for Installation of Piping and Mechanical Equipment NAS-1009, Rev.18 allows utilization of high corrosion resistance alloy AL-6XN (6% molybdenum stainless steel) for 10" diameter and smaller SW system pipes. Installation of this high corrosion resistance material will mitigate and possibly prevent deterioration of SW piping due to general and pitting corrosion. Al-6XN pipe has higher allowable stresses than carbon steel (CS) or stainless steel (SS) pipes, which have been utilized for the SW piping. Also, this pipe has approximately the same weight and temperature expansion qualities as the existing piping while having significantly higher corrosion resistance. Therefore, the replaced piping will maintain its integrity under the piping design conditions. Utilization of AL-6XN piping for replacement of deteriorated 4" diameter sheathed portions of Service Water (SW) line to/from Control Room (CR) chillers will increase reliability of this piping and cut future maintenance expenses.

Safety related equipment is located in the areas in which piping replacement will occur and through which construction materials will pass. During construction activities, care will be taken not to introduce situations that could adversely affect this equipment. Previous experience with piping replacement in these areas shows that this activity can be accomplished without compromising unit safety.

This SW piping replacement does not involve unreviewed safety questions since replacement of deteriorated 316L stainless steel piping with 6% molybdenum stainless alloy is replacement of the existing piping with superior quality (higher stress allowables and corrosion resistance) material. Therefore, the long term consequences of this replacement will increase reliability of SW system.

Basic SW System functions and system configurations are not altered as a result of this piping upgrade. This upgrade will not adversely affect the basic functions of the SW system and will not create an accident of a different type than was previously evaluated in the UFSAR. Replacement of the deteriorated SW piping with superior material will be done within the existing Technical Specification Limiting Conditions for Operation. This replacement will increase reliability of the SW system. Therefore, the possibility for an accident of a different type than was previously evaluated in the Safety Analysis Report will not be created.

98-SE-MOD-27

Description
Design Change Package (DCP) 98-005 is being implemented to install additional standpipe piezometers on and near the downstream slope of the main dam in the vicinity of existing piezometer P-24B to better define the piezometric surface in the area.

Summary
As recommended in the Third Periodic Consultant Inspection Report, North Anna Dam, August 1996, preliminary stability calculations were performed for a section of the downstream slope in the vicinity of piezometer P-24B (Station 39+20). Several assumed phreatic conditions were utilized in these evaluations. These assumed phreatic levels were not well defined due to a lack of actual piezometric data in the area. Calculations using one of the assumed phreatic conditions obtained a Factor of Safety of slightly less than 1.5 for the steady state seepage condition. A Factor of Safety of less than 1.5 for this condition is considered inadequate. For this reason, additional piezometers will be installed to better define the design inputs (i.e., existing phreatic surface in the area) so that a calculation can be performed that accurately portrays the actual condition in the dam. Installing the additional piezometers and performing the calculation using the data generated by the piezometers was committed to in Engineering Transmittal CCE 97-0013.

The UFSAR will be changed to update Table 3.8-12 and Figure 3.8-24 to identify and show the location of the new piezometers.

Installing these additional piezometers in the slope of the dam and near the toe of the slope will not 1) increase the probability of an accident by reducing the stability of the main dam below that which was calculated in the original design basis calculation, 2) increase the consequences of a slope failure at the main dam, or 3) create the possibility of a new accident. Installation of the piezometers will enhance monitoring capability by providing additional water level information to better reflect the actual water level conditions to better define the groundwater regime along this section of the main dam.

The proposed installation will not 1) increase the probability of occurrence of malfunctions greater than that defined in the original design basis slope stability calculation or 2) increase the consequences of malfunctions causing failure of the dam slope. The proposed changes will not create the possibility for a malfunction of equipment or a failure of a different type than was previously evaluated in the Safety Analysis Report.

99-SE-MOD-02

Description
Design Change will install a cross tie between the 18" Component Cooling (CC) water return lines to allow return flow from the Primary Drain Transfer Tank (PDTT) cooler, excess letdown heat exchanger, Residual Heat Removal (RHR) seal coolers and the neutron shield tank heat exchangers to be directed to both CC return headers.

Summary
Component Cooling trip valve 2-CC-TV-203B is the containment isolation valve for the CC return line from the Unit 2 'B' RHR heat exchanger. The valve also isolates return cooling water from both trains of several miscellaneous heat exchangers including both RHR pump mechanical seal coolers, PDTT cooler, Excess Letdown heat exchanger and the Neutron Shield Tank coolers. 2-CC-TV-203B must be open for either train of RHR to operate as designed as well as to allow the 'B' RHR heat exchanger to remain in service. Single failure of this CC trip valve in the closed direction will block return CC flow from these various coolers inside containment and could potentially jeopardize the operation of both RHR pumps due to the loss of RHR pump mechanical seal cooling capability. This could render both trains of RHR inoperable.

This design change will mitigate RHR operability concerns by installing a 6" cross tie across the 18" CC return headers inside containment. The cross connect will be located between the trip valves (2-CC-TV-203A/B) and isolation valves (2-CC-MOV-203A/B). This configuration will then allow CC return flow from the containment coolers to be directed to both 18" CC return headers and provide additional assurance of cooling capability for the containment heat exchangers and coolers. RHR operability concerns with respect to 2-CC-TV-203B valve position will be eliminated by the addition of the alternate CC return flow path.

SUMMARY OF SAFETY ANALYSIS

The modification did not constitute an unreviewed safety question as defined in 10CFR50.59 since it did not:

A) Increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in UFSAR.

The activity does not generate new initiators that would affect the probability of occurrence for analyzed accidents. The CC and RHR systems do not perform a design basis accident mitigation function. Installation of the CC cross tie to the 'A' RHR heat exchanger CC return header will provide an additional flowpath for the miscellaneous containment cooler's CC return in the event that 2-CC-TV-203B fails in the closed direction or the 'B' RHR heat exchanger CC return header is taken out of service. The availability of CC for normal cooldown of the plant during Phase A isolation is not impacted by this design change. Continual flow through the RH seal coolers will ensure RHR pump and system operability. The ability of the component cooling water system to perform its design function will not be affected by this activity.

B) Create a possibility for an accident or malfunction of a different type than any evaluated previously in the UFSAR.

No new accident scenarios will be created as a result of this modification. The modification will be installed using qualified materials for the CC system, approved maintenance weld procedures and tested prior to being placed in service. The new cross tie will be included in the ASME XI ISI/IST program. As a result, failure of this cross tie piping that could potentially affect the CC supply/return headers is not considered likely. The modification will not adversely affect the CC system hydraulic characteristics and the cross tie line is seismically designed and located within a missile protected area. Installation of the containment cross tie will increase reliability and flexibility to the CC system. The activity will not affect the CC systems ability to comply with GDC 57 requirements for containment isolation. Accidents or malfunction of equipment of a different type than was previously evaluated is not credible due to nature of the modification.

C) Reduce the margin of safety as defined in the basis of any Technical Specification.

Technical Specification compliance will not be challenged with this activity. Installation of the containment CC cross tie will not reduce the margin of safety of the CC system as described in the Technical Specifications.

99-SE-MOD-09

Description
Design Change Package (DCP) 99-005 consists of restraining cabinets (1/2-EI-CB-07 ventilation control panels) which are connected to adjacent Emergency Diesel Generator (EDG) control panels 1/2-EI-CB-08B in the Main Control Room (MCR).

Summary
Part of the Unresolved Safety Issue (USI) A-46 / IPEEE (Seismic) effort for North Anna was to verify that equipment required to complete hot shutdown of the station would not be adversely affected by a seismic event. Walkdowns were performed to identify vulnerable situations and those that could not be readily resolved were identified as outliers in the Virginia Power summary letters submitted to the NRC describing the results of the review.

The walkdowns were based in part on industry experience and electrical cabinets housing sensitive relays were specifically identified to ensure that interaction with adjacent cabinets or equipment would not occur. (Impact loading can cause relay chattering during the approximately 15 second postulated seismic event.) Panels 1/2-EI-CB-08B, which contain sensitive relays, were identified as one such outlier. 1/2-EI-CB-08B are the 1J and 2J EDG control panels on the MCR backboards. They are connected (or tied) to the adjacent ventilation panels (1/2-EI-CB-07). However, the ventilation panels can be impacted by the radiation monitor panels and the boron recovery panel or waste disposal panel (for Unit 1 and 2, respectively) which would transmit impact loading to 1/2-EI-CB-08B. USI A-46 Summary Report submitted to NRC in May 1997 for North Anna Power Station identified concerns with regard to the relay chattering identified above. Therefore, it is necessary to restrain these panels to ensure that these panels do not impact with adjacent panels to prevent relay chatter during a seismic event.

This change is being implemented to ensure that the essential relays in the EDG control panels do not chatter during a seismic event due to possibility of impact of its adjacent ventilation panels with panels next to it. This is a postulated event. The proposed modification will however increase the safety margin.

No unreviewed safety question exists because no impact of the function, reduction of safety margin or change in procedures, operating license or technical specifications, or environmental conditions will result from this modification. The change is only limited to installing restraints at the top of panels in the MCR.

99-SE-MOD-11

Description
On the Fuel Handling Manipulator Crane in Containment, the control panel, the motor control center (MCC) and related cables and controls will be replaced by implementation of Design Change Package (DCP) 97-013. The new equipment will allow the control panel and MCC to be removed from Containment between refueling outages. The new MCC contains a modem speed control (frequency drive). The new control panel contains a programmable logic controller (PLC).

Summary
The Fuel Handling Manipulator Crane is used at North Anna to move fuel assemblies inside the containment. Because of the harsh environment in that location, the existing electrical equipment and wiring have demonstrated significant deterioration and have required regular repairs. This modification is to remove the control panel and MCC from the crane and replace them with equivalent, modern electronic devices. The new control panel and MCC will be removable from the containment between refueling outages.

The new MCC will use a variable frequency drive instead of the thyrister drive circuit in use now. The new control panel will use a PLC. The connecting cables between the two panels and the festoon cable will also be replaced. The purpose of these changes is to improve reliability and reduce mechanical deterioration.

Modifications to the Fuel Handling Manipulator Crane will not increase the probability or consequences of a fuel handling accident in containment since no moving parts are being replaced on the trolley or hoist and the control function is the same as before, with improved and tested equipment. Furthermore, the crane is non-safety related (NSQ for Seismic). The electrical power and control circuits being changed by this modification will not change the probability or consequences of the postulated fuel handling accident. The logic of the new system is essentially the same as the existing system. The physical changes to the crane that are proposed here are not reflected in the operation of the crane as it relates to that accident. The integrity of the crane structure (including seismic requirements) is not being adversely affected. Since the Manipulator Crane is only used when the reactor is shut down and stable, there are no additional accidents made possible by the modification.

The greatest concern during refueling is fuel failure. The changes to the Manipulator Crane do not have an effect on fuel cladding failure. The control panel and MCC will be installed when the reactor head is protecting the fuel. The control panel and MCC will be seismically restrained during the time the reactor head is removed (although this is not a prerequisite for the work of this modification since the work is not performed over the reactor). The functions of the crane include detecting fuel cladding and moving the fuel. Neither of these functions is affected by this modification.

The Manipulator Crane will have greater reliability as a result of these changes, but these changes will not have any direct impact on the integrity of the fuel. Thus, they will not cause a failure of equipment not previously analyzed. Only the electrical power and control circuits and related equipment are being replaced, and the structural integrity will not be reduced. The margin of safety in the Technical Specifications will not be changed by the modification. No Technical Specification, UFSAR or Operating License changes are required.

99-SE-MOD-12

Description
This evaluation assesses the acceptability of individually overriding the following automatic trips for the Unit 1 and 2 High Capacity Steam Generator (SG) Blowdown (BD) System:
1. Blowdown Flash Tank Inlet Flow Trip (1/2-BD-FT-102 (202) A/B/C),
2. Blowdown Flash Tank High Outlet Flow Trip (1/2-BD-FT-105 (205)),
3. Blowdown Flash Tank Hi-Hi Pressure Trip (1/2-BD-PT-100 (200)),
4. Blowdown Flash Tank Level Trip (1/2-BD-LT-100 (200)),
5. Blowdown Outlet Cooler High Temperature Trip (1/2-BD-RTD-101 (201)) and
6. Low Condenser Vacuum Trip (1/2-CN-PT-101 (201) A/B).

These changes are included in DCP 99-119 and several of the field changes associated with DCP-98-130. Additionally, DCP 99-119 the field changes for DCP 98-130, install Tear 2000 (Y2K) ready software and several "human factors" enhancements for the Units 1 and 2 High Capacity SG BD System. DCP 99-119 also provides for the installation of Y2K ready hardware for 2-SS-RM-225, the reinstallation of interposing relay 2-3BDGN02 and the installation of Y2K ready software on a portable computer that will be used to set up radiation monitors (1/ 2-SS-RM-125 (225)).

Summary
The high capacity steam generator blowdown system is designed to automatically shutdown when the system detects that the setpoint for maximum or minimum blowdown flash tank inlet flow (as sensed by 1/ 2-BD-FT-102 (202) A/B/C) has been attained or the blowdown flash tank maximum outlet flow (as sensed by 1/ 2-BD-FT-105 (205)), has been attained. Also, the system automatically shuts down when the setpoint for the blowdown flash tank high pressure (as sensed by 1/ 2-BD-PT-100 (200)), the blowdown flash tank high or low level (as sensed by 1 /2-BD-LT-100 (200)), the blowdown cooler high outlet temperature (as sensed by RTD1 /2-BD-RTD-101 (201)) and the main condenser high pressure (as sensed by 1/ 2-CN-PT-101 (201)) have been attained or exceeded.

During the spring 1998 Unit 1 refueling outage, the Unit 1 High Capacity SG BD System was upgraded to Year 2000 (Y2K) readiness per DCP 98-130. Also, included in that package were enhancements categorized as human performance improvements requested by the Operations Department. However, the capability for overriding specified system trip signals that were requested by the I&C Department was omitted from the package, because that item had not received a safety review.

DCP 99-119 will implement changes to the Unit 2 High Capacity SG BD System to make it Y2K ready and add human performance enhancements similar to those added during the Unit 1 blowdown system modifications. In addition, both the Units 1 and 2 Systems are to be further enhanced by adding the capability of overriding system trip signals from the individual transmitters listed above. The Unit 2 enhancements will be included in DCP 99-119 and the Unit 1 enhancements will be added by way of a field change to DCP 98-130.

At present, the transmitters listed above cannot be serviced or recalibrated while the high capacity BD system is in service. This is so because it is not possible to disable the automatic trip signal that may be actuated during a maintenance or calibration evolution. In order to facilitate online maintenance or calibration of these transmitters, if the need should arise, the software for the system will be changed to provide the capability for disabling the trip signal from the transmitter that has been selected for maintenance. The software changes will include the addition of a maintenance screen that will include several safety features. The maintenance screen will be accessed from the mimic screen via a button bar titled "Maint. Screen" and a new separate user and password. In the maintenance screen each component that has on line maintenance capability has an "ON" and an "OFF" pushbutton which will not operate if the Startup/Run function is in "Startup", or FW Maint. is in "Yes". Also, these buttons will not operate unless the appropriate device is placed in manual.

When a transmitter is placed in maintenance, the status of the Startup, and the FW Maint. button cannot be changed. Only one transmitter at a time can be placed in maintenance. The transmitter selected for maintenance will enable a flashing red display of "MAINT" in close proximity to the transmitter to visually display its status. This flashing status indicator will be visible from on both the mimic and maintenance screen. The numeric display for the transmitter in maintenance will be displayed on the blowdown computer screen. When an alarm setpoint for the transmitter in maintenance is exceeded an alarm indication will be displayed on the computer screen to verify functionality of the alarm.

CE-821 AC controllers associated with PY/CN201A-2 and PY/CN201B-2 directly feed a steam generator blowdown non-isolated digital input module. This misapplication was a potential cause for a high capacity blowdown trip. DCP 99-119 will incorporate the reconnection of an interposing relay for Unit 2 to eliminate the potential for a spurious high capacity blowdown trip. The same change has already been successfully performed on Unit 1 via DCP 98-130.

A Human Factors analysis has been performed and the proposed modifications are in compliance with NUREG-0700, STD-GN-0005 and GN-STD-0036. The computer, the software and the programming will be tested by a test plan provided by Nuclear Business Unit (NBU) Year 2000 Team to ensure year 2000 readiness. The Blowdown Radiation Monitor will also be tested by a test plan provided by NBU Year 2000 Team to ensure year 2000 readiness.

None of the changes to be implemented will affect the likelihood of a loss of offsite power to station auxiliaries, a steam generator tube rupture or an excessive load increase incident. These changes affect only the software associated with the high capacity steam generator blowdown system which is in no way connected to safeguards systems designed to operate during the events listed above. Thus, the consequences of those accidents are not changed. Compensatory measures to be included in applicable maintenance and operations procedures will prevent failures resulting from loss of flow, temperature or level control. Overpressure protection for the blowdown flash tank will still be available during the activity. The creation of new accident or malfunction possibilities is not introduced. For these reasons, an unreviewed safety question does not exist, and this activity should be allowed.

99-SE-MOD-16

Description
The modification is being implemented to 1) enhance the protection of the main generator against operating as an induction generator, 2) improve the operator's visual indication of the negative sequence current in the generator, and 3) support improved operator response to high negative sequence current.

Proposed changes consist of:
(1) rewiring the over excitation signal to trip main generator breakers (in the switchyard), the exciter field breaker, and the turbine auto stop solenoid trip, to prevent damage to the main generator and to lock-in the trip indication for over excitation,
(2) defeating the K3 over excitation signal (in circuit 2SPGN02) by opening the associated test switch when maintenance or testing occurs in the voltage regulator cabinet,
(3) adding a Percent Negative Sequence Ammeter, on the generator control panel, wired to the existing SGC Negative Sequence Relay to provide a visual indication of the Percent Negative Sequence Current in the Main Generator,
(4) providing "NEGATIVE SEQUENCE ALERT" annunciation in the control room to alert the operator of the degrading condition and allow for operator action, before unit trip occurs,
(5) Combine "GEN DIFF LO RELAY TURB TRIP" and "GEN BACKUP LO RELAY TURB TRIP" annunciator windows into a single window "GEN LO RELAY TURB TRIP".

Summary
Implementation of this DCP (i.e. tie-ins) will be performed during a unit outage of sufficient duration to support modifications and testing of modifications prior to return of the unit to service. Some non-outage work can be performed with Operations approval. The implementation of this DCP will improve the protection of the unit main generator and improve the ability of the operator to monitor generator status related to negative sequence current and possibly avoid inappropriate unit trips. The work involved is discussed in detail below.

At present, during an over excitation condition when the unit is "on-line, the OXP-1 relay K3 operates to trip the Exciter Field Breaker, however the generator remains tied to the system. The generator will act as an induction generator after loosing its field and will draw high reactive current. The high reactive current will cause rotor and stator temperatures to increase and will damage the generator if the generator is not removed (disconnected) from the system in time. Therefore, this DCP modifies this circuit and the K3 relay will now, except when the K3 test switch is open, trip the 86BU lockout which trips the exciter field breaker, the generator breakers (in the switchyard) and the turbine via the turbine auto stop solenoid trip. Either or both of the generator breakers may be closed when the generator is off line. To prevent the effects of an unintentional closing of the K3 relay contacts, caused during maintenance, which would result in tripping the generator breakers, a test switch will be installed in the K3 trip circuit in the control circuit 2SPGN02. The test switch will be opened during testing and maintenance and closed after testing and maintenance is completed in accordance with procedures.

This DCP will combine the "GEN DIFF LO RELAY TURB TRIP" and "GEN BACKUP LO RELAY TURB TRIP" annunciator windows into a single window "GEN LO RELAY TURB TRIP".

Currently, the only visual indication of negative sequence current is the alarm light on the SGC relay in the Emergency Switchgear Room, which indicates that the negative sequence current has reached the relay alarm set point. The annunciator window 2E-55 will be connected to the relay alarm contacts and will provide the operator in the control room a visual indication when the relay alarm set point is reached. The addition of the percent negative sequence ammeter in the Emergency Switchgear Room will allow the touring operator or an auxiliary operator to trend the negative sequence current, sensed by the (SGC) negative sequence relay. The combination of the ammeter and the annunciator can possibly allow the control room operator to take the necessary action to prevent a unit trip. The magnitude of the negative sequence current impacts the time the operator has to react to the abnormal condition and in cases where the negative sequence current is high may preclude operator action prior to relay operation and thereby unit trip. The ammeter label shows a range for expected normal readings and instructions for action to take if the reading is outside of the specified range. For cases, where the current is high enough to cause the annunciator to activate in the control room, response will be per the appropriate Annunciator Procedure.

This work does not create the possibility of an accident of a different type than the type previously evaluated in the Safety Analysis Report. The contacts for over excitation relay are relocated from the Exciter Field Breaker Control circuit 2EXPN01 to the Generator Over Excitation portion of the circuit 2SPGN02. This arrangement will trip the exciter field breaker, the generator breakers (in the switchyard) and the turbine auto stop solenoid. This will cause a turbine trip and in many cases (above 30% power) a reactor trip, however, these are previously analyzed conditions.

This work does not increase the probability of occurrence of a malfunction identified in the Safety Analysis Report (SAR). This work is non-safety. Tripping the turbine and the main generator possibly resulting in the tripping of the reactor is discussed in Section 15.2.7 of the UFSAR. While on line, the unit (turbine and generator in all cases, and reactor under most conditions) will now be tripped on overexcitation by either the Beckwith volts per hertz overexcitation relay (present design) or the Westinghouse exciter circuit (K3 relay). Prior to this modification, the Westinghouse circuit (K3 relay) only tripped the exciter field breaker if the unit was on-line. By tripping the unit using the Westinghouse overexcitation detection, the trip should in most cases occur before the Beckwith relay would have tripped the unit and thereby improves the probability of trip before generator damage occurs. Additionally this modification will provide for a lock-in of the overexcitation trip indication. By providing a trip prior to possibly damaging the generator the probability of damage to a major non-safety component has been reduced with no adverse impact on probability of other malfunctions.

This work does not affect the margin of safety of or require any changes to any part of the Technical Specifications or the Operating License.

This work is non-safety and does not result in any changes to the Technical Specifications or the Operating License. The input signal for over excitation of the main generator is relocated to another circuit to enable the tripping of the generator breakers, the exciter field breaker and the turbine auto stop solenoid trip by tripping the 86BU lockout relay. The tripping circuits for the exciter field breaker and the generator breakers are existing.

Based on the review, an unreviewed safety question does not exist, as a result of the reworking the Westinghouse overexcitation signal to trip the exciter field breaker, the generator breakers and the turbine auto trip stop solenoid, reworking overexcitation trip indication, providing annunciation and remote indication of negative sequence current, and revising generator lock out annunciation.

Also, there is no impact to the environment or increase in occupational exposure as all work is within clean areas of the service building and the turbine building.

Visual enhancement is provided to monitor the percent negative sequence current in the main generator by the addition of the ammeter in the Emergency Switchgear Room and the "NEG SEQUENCE ALERT" annunciator window in the control room.

Tripping for negative sequence current is not changed by this DCP. Visual enhancement is provided to monitor the percent negative sequence current in the main generator by the addition of the percent negative sequence ammeter in the Emergency Switchgear Room and the "NEG SEQUENCE ALERT" annunciator window in the control room. The visual enhancement will reduce the probability of a unit trip, due to negative sequence current, because in some cases the operator may be able to take action to reduce the negative sequence current below the trip setpoint before the time delay expires.

99-SE-MOD-18

Description

In each unit, a new high point vent will be installed on the suction line to the "A" low head safety injection (LHSI) pump. The new vent valve will be located in the safeguards area, elevation 267'-6", on the piping just before it drops down to the suction of the low head safety injection pump.

Summary

Root Cause Evaluation Report N-98-07 "Inoperability of Unit 1 "B" Casing Cooling Pump" identified that in both units the suction line, from the refueling water storage tank to the "A" low head safety injection pump did not have an adequate vent in the line. This condition could lead to a substantial amount of air being trapped in the high point of the low head safety injection pump suction lines during refill of the system at the end of a drained period. The root cause evaluation recommended that a vent be installed in the affected lines to enhance drain-down of the systems for maintenance and to enable venting of the suction lines during refill.

The addition of vent valves to the suction piping of the "A" LHSI pumps does not create an unreviewed safety question. The operation and function of the LHSI system is not affected by the valve additions. The vent valves are passive piping components that do not affect any previously evaluated accidents or create any new accidents of a different type. The design and installation of the new vent valves is consistent with the original system design requirements. The new vent valves are maintained in the closed position and are capped preventing leakage during normal operation

The purpose of the vent valves is to enable venting of the suction lines to the "A" LHSI pump during refill following system maintenance. The elimination of potentially substantial amounts of air from the pump suction piping decreases the probability of a pump malfunction due to air binding. Therefore, the overall reliability of the LHSI pumps is increased by the addition of the new vent valves. In Unit 1, the new vent valve is located in the safeguards area, elevation 267'-6", in line number 10"-SI-214-153A-Q2, immediately downstream of isolation valve 1-SI-MOV-1862A just before the line drops down to the suction of LHSI pump 1-SI-P-1A. In Unit 2, the new vent valve is located in the safeguards area, elevation 267'-6", in line number 10"-SI-629-153A-Q2, immediately downstream of isolation valve 2-SI-MOV-2862A just before the line drops down to the suction of LHSI pump 2-SI-P-1A.

In accordance with Technical Specifications 3.1.2.1, 3.5.2 and 3.5.3, the new vent valves will be installed during a refueling outage when the LHSI pumps may be tagged out for maintenance and the associated flow path is not required for that mode of operation. During installation, operability of both LHSI pumps may be affected if isolation valve 1-SI-MOV-1862A or 2-SI-MOV-2862A is disassembled for installation of the new vent valves. Operations will coordinate the LHSI system tag-out with respect to refueling activities since the LHSI pumps are normally used for transferring water to/from the refueling cavity. After installation, the new vent valves have no effect on the operation or capability of the LHSI system.

99-SE-MOD-21

Description

Design Change Package (DCP) 99-145 makes Temporary Modification (TM) N2-1128 a permanent change. This involves replacement of buffer amplifier cards with thermocouple amplifier cards for three feedwater temperature computer inputs.

Summary

This activity does not involve any physical modification to the facility. The new thermocouple amplifier (TC) cards (installed by TM N2-1128) are not manufactured by the same company as the buffer amplifier (BA) cards, and they are designed to fit the same slots. Bench testing and the performance since having been installed by TM has shown that the TC card has a more stable output than the BA card. The affected cards send a main feedwater temperature to the Plant Computer System (PCS) and the Emergency Response Facility Computer System (ERFCS) only. The signal to the P-250 computer is not affected. Thus, the P-250 feedwater flow calorimetric is not affected by this activity.

Operations department calorimetric procedures currently "auctioneer" to the most conservative (or highest power) calorimetric indication. Currently, the Unit 1 and 2 calorimetrics using their PCS are the highest, thus they are used as the official indication. Since the accuracy of the calorimetric is in question due to the sensitivity of the BA cards to instrument drift, this condition may be requiring and unnecessary reduction in unit electrical output.

Failure of the activity, for the near term, is bounded by the evaluations performed for the feedwater flow calorimetric performed under safety evaluation 99-SE-MOD-01. Additionally, the PCS indications of feedwater temperature or feedwater flow calorimetric will not be adversely affected. This has been proven empirically by comparing the results obtained with the new cards vice Unit 1 results using the old (pre-modification) cards. Thus, there is no adverse affect on nuclear safety. No new accidents are created, and consequences of analyzed accidents are not affected. There is no reduction in the margin of safety or ability to mitigate accidents. For these reasons, an unreviewed safety question does not exist.

Since the activity will install amplifier cards in the circuit that are better suited for the application and result in a more accurate feedwater flow calorimetric, unnecessary reductions in unit electrical output may be eliminated.

99-SE-MOD-22

Description

Design Change Packages (DCPs) 99-133 and 99-134 will install cross tie lines between the chilled water system and the bearing cooling system at the generator leads cooler (isophase bus duct air cooler) on Unit 1. The lines are to tie into the chilled water supply and return lines for the steam chiller.

Summary

Unit 1 megawatt output has increased following implementation of moisture separator reheater (MSR) and feedwater calorimetric modifications. Problems have been experienced with high isophase duct temperatures as a result of increased unit output and higher ambient temperatures. The generator leads cooler is supplied with bearing cooling as the cooling fluid. Chilled water is at a lower temperature than the bearing cooling water. Cross tie lines are to be installed between the chilled water system and the bearing cooling system at the generator leads cooler (isophase bus duct cooler). The lines are to tie into the chilled water supply and return lines for the steam chiller and will supply some additional cooling to the cooler to help with the high temperature problems. Bearing Cooling will still be available to provide cooling if needed. The service water system will still provide back up cooling to the chilled water system. Both systems are non-safety and no other system will be affected by this change. The lines are to be designed and installed in accordance with plant specifications and procedures.

UNREVIEWED SAFETY QUESTION ASSESSMENT

The accidents considered were a Loss of Coolant Accident and Main Steam Line Break.

1. Accident probability has not been affected. Both the chilled water system and bearing cooling have no role in the incidence of these accidents.

2. The consequences of an accident will not be affected. Technical Specification requirements for containment and Refueling Water Storage Tank (RWST) temperatures will not be affected.

3. No unique accident probabilities are created. The bearing cooling supply to the generator leads cooler will still be available and the chilled water can be isolated.

4. The margin of safety is maintained. Compliance with Technical Specifications for containment and RWST temperatures is not affected.

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S.E. #	Unit	Document	System	Description	SNSOC Date
99-SE-OT-01	1,2	TS CHG #323A		Identifies that the 14-day allowed outage time (AOT) action statement for backup nitrogen accumulators for the PORVs is risk-informed & will require invoking the Configuration Risk Management Program when using / entering the AOT.	1-12-99
99-SE-OT-02	1,2	UFSAR FN 99-007 Section 6.3.2.1.1		Clarifies that the boron concentration requirements per TS do not apply for the piping between the 2 safety injection accumulator discharge check valves	1-14-99
99-SE-OT-03	1,2	UFSAR FN 98-045 Sections 3A, 7.4,8.1, 8.3, 9.5, 14.1	EDG	Changes UFSAR sections that discuss the EDG system as a result of the Configuration Mgmt. review	1-28-99
99-SE-OT-04	1,2	UFSAR FN 98-052 Section 10.4.3.3.1		Removes the auxiliary feedwater system from the list of systems analyzed for water-hammer & steam-hammer occasional mechanical loadings	2-11-99
99-SE-OT-05	1,2	UFSAR FN 98-050	RM	Changes UFSAR sections that discuss the RM system as a result of the Configuration Mgmt. review	2-23-99
99-SE-OT-06	1,2	UFSAR FN 98-057	RS	Changes UFSAR sections that discuss the RS system as a result of the Configuration Mgmt. review	2-23-99
99-SE-OT-07	1,2	UFSAR FN 98-025	RP	Changes UFSAR sections that discuss the reactor protection system as a result of the Config. Mgmt. review	3-09-99
99-SE-OT-08	1,2	UFSAR FN 99-002	EP	Changes UFSAR sections that discuss the emergency power system as a result of the Configuration Mgmt. review	3-09-99
99-SE-OT-10	1,2	UFSAR FN 99-016		Documents limited use of ASME Boiler & Pressure Vessel Code, Section III, App. F in evaluating isolated water filled containment penetrations that are potentially susceptible to over-pressurization during a DBA.	3-23-99
99-SE-OT-11	1,2	UFSAR FN 99-015 Section 6.4.1.3.3 & Table 2.2-3		Updates UFSAR regarding current site chemical storage configuration based on Calc ME-0567	3-25-99
99-SE-0T-12	1,2	UFSAR FN 98-031	MS	Changes UFSAR sections that discuss main steam as a result of the Configuration Mgmt. review	3-25-99
99-SE-OT-13	1,2	TS CHG 333A Section 3 / 4.6.1.2		Eliminates specific reference to mass-point (Type A test) method & adds discussion of performance-based testing IAW 10CFR50, App. J, Option B to allow use of other NRC staff approved integrated leak rate test methodologies	4-01-99
99-SE-OT-14	1,2	TS CHG 290		Reduces unnecessary testing at power of the RTS / ESFAS instrumentation & provides risk-informed relief in AOTs & bypass times for instrument channels	4-08-99
99-SE-OT-15	1,2	TS CHG 366 TRM CHG 31 UFSAR FN 98-061		Changes TS to make the operability & surveillance requirements for the control room habitability systems consistent with the revised dose analysis for a large break LOCA.	4-13-99

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S.E. #	Unit	Document	System	Description	SNSOC Date
99-SE-OT-16	1,2	TS CHG 364 TRM CHG 36		Deletes additional stringent primary to secondary leak rate limits and/or relocates portions of enhanced leakage monitoring requirements for the original S/Gs that were imposed by TS 3.4.6.3 & 3.4.6.4 when operating in Mode 1 above 50% power. Also adds a clarification footnote for surveillance requirement 4.4.6.2.1.d stating that primary to secondary leakage surveillance is not required below 50% power.	4-13-99
99-SE-OT-17	1,2	UFSAR FN 98-043	SW	Changes UFSAR sections that discuss the SW system as a result of the Configuration Mgmt. review	4-29-99
99-SE-OT-18	1,2	ET CME 99-0017 (Rev. 0)		Acceptability of auxiliary building exhaust filtration system – Following closeout of JCO 98-C-98-01, total ECCS leakage limit will return to 900 cc/hr. Allowable leakage in areas outside safeguards & the charging pump cubilces will continue to be limited to 600 cc/hr.	5-04-99
99-SE-OT-19	1,2	UFSAR FN 99-011 (Sections 11.1.1-5, 15.3.6.2 and Tables 11.1-5 & 11.1.12)		Revised to reflect the new volume control tank rupture analysis, which is consistent with actual plant operation	6-01-99
99-SE-OT-20	1,2	UFSAR FN 99-004		Changes UFSAR sections that discuss Radiological Protection as a result of the Configuration Mgmt. review	6-24-99
99-SE-OT-21	1,2	ET SE-99-023 (R. 0)		Lowering of the stand-by jacket coolant water temperatures for 1-EE-EG-1H, 1J and 2-EE-EG-2H, 2J during warm weather months (Also see 99-SE-PROC-12)	6-22-99
99-SE-OT-22	1,2	UFSAR FN 99-036 Section 6.2.4.2		Clarification stating that the hydrogen recombiner suction piping connects upstream of the containment vacuum trip valves, not downstream	7-01-99
99-SE-OT-23	1,2	UFSAR FN 99-008		Changes UFSAR sections that discuss the Safety Injection System as a result of the Configuration Mgmt. review	7-08-99
99-SE-OT-24	1,2	TS CHG 369		(1) Revises surveillance requirement 4.4.1.6.1 to relax the “drained-loop verification requirement” from 2 hours to 4 hours to allow additional time to establish a partial vacuum in the isolated & drained loop; (2) clarifies Bases ¾.4.1 to acknowledge that RCP seal injection is initiated into the isolated & drained loop as a prerequisite for the vacuum assisted backfill technique.	7-15-99
99-SE-OT-25	1,2	Memo-Design Review for Release of Safety Monitor Models N7C &N7D		The safety monitor will initially be implemented at NAPS for on-line maintenance risk evaluations	7-22-99

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S.E. #	Unit	Document	System	Description	SNSOC Date
99-SE-OT-26	1,2	ET-SE-99-014, R. 0 Tech Rpt NE-1195 R. 0 Tech Rpt NE-1153, R 2 ET-CME-0033, R. 1 W Rpt-Tavg coastdown ICP-P-1&2-T-409B 1&2-PT-18 1&2-OP-1C 1&2-OP-2.2C 1&2-PT-11		Implements an end of cycle temperature coastdown, followed by a power coastdown, as an alternative to the standard end of cycle power coastdown operation. The proposed operation will maximize integrated electrical output by maintaining 100% turbine power while Tavg decreases below the nominal 100% value of 580.8°F, not to exceed limits imposed by the RSE.	7-22-99
99-SE-OT-27	1,2	UFSAR FN 99-024		Changes UFSAR sections that discuss the Nuclear Instrumentation as a result of the Configuration Mgmt. review	7-27-99
99-SE-OT-28	1,2	UFSAR FN 96-007		Reduces the number of weld inspections on high energy piping required by the augmented ISI program from 100% to 75% per interval. (Reference: 96-SE-OT-46)	7-29-99
99-SE-OT-29	1,2	UFSAR FN 99-027		Changes UFSAR sections that discuss the circulating water system as a result of the Configuration Mgmt. review	8-05-99
99-SE-OT-30	1,2	UFSAR FN 99-039 Sections 15.4.1.7.3 & 15.4		Updated to reflect that the maximum allowable ECCS leakage per unit in the indirectly filtered areas of the Aux. Bld. (outside charging pump cubicles & safeguards) will be limited to 600 cc/hr.	8-10-99
99-SE-OT-31	1,2	10CFR50, App. R Report, Rev. 17		Incorporates modifications to the plant & plant configurations that impact the Appendix R Program	8-10-99
99-SE-OT-32	1,2	ET CME-99-0016 (Rev. 1)		Response to DR N-99-0655 – Changes the design pressure for the main steam containment penetrations from 1085 psig to 996 psig (& the corresponding code wall thickness to 0.890")	8-12-99
99-SE-OT-33	1,2	UFSAR FN 99-034		Revises the transient analysis of the uncontrolled rod cluster control assembly withdrawal at power accident	8-12-99
99-SE-OT-34	1,2	UFSAR FN 99-040 Section 15.1.6		Revises the transient analysis assumptions for the Doppler reactivity feedback & updates the transition from a DPC model to a DTC model	8-12-99
99-SE-OT-35	1,2	UFSAR FN 99-028		Changes UFSAR sections that discuss the waste gas disposal system as a result of the Configuration Mgmt. review	8-12-99
99-SE-OT-36	1,2	UFSAR FN 99-031		Changes UFSAR sections that discuss the DC power system as a result of the Configuration Mgmt. review	8-17-99
99-SE-OT-37	2	99-TSR-029		Temporary shielding request to install 30 pounds of temporary lead blanket shielding to operable / operating 2" diameter S.R. CVCS piping at a tee directly above 2-CH-15	8-24-99
99-SE-OT-38	1,2	ET SE 99-043 (R.0) WP-M13 (R. 1)		Supplies fire protection water supply for outage trailers used on the turbine building operating floor.	8-26-99
99-SE-OT-39	1,2	UFSAR FN 99-030		Changes UFSAR sections that discuss the chemical and volume control system as a result of the Configuration Mgmt review	8-31-99

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S.E. #	Unit	Document	System	Description	SNSOC Date
99-SE-OT-40	1,2	TS Chg #372 1&2-PT-17.2 UFSAR FN 99-046		Changes the acceptance limit for as-found rod drop times to reflect the treatment of seismic effects Reference ET NAF 99-0081, Rev. 0	8-31-99
99-SE-OT-41	1,2	TS interpretation for TS 4.7.8.1.b.1, b.3, d.1, e, & f		Defines what constitutes "Safeguards Ventilation System Flow Rate" as referenced by the TS	9-05-99
99-SE-OT-42	2	99-TSR-016 99-TSR-025		Installs temporary lead blanket shielding to operable U2 RC piping during Mode 6 with fuel in the reactor vessel. -99-16-installs shielding on 8" RC bypass piping near the cold leg stop valve in each RCP cubicle – -99-25-installs lead blankets on the pressurizer surge line	9-07-99
99-SE-OT-43	1,2	UFSAR FN 99-020		Changes UFSAR sections that discuss the North Anna containment system as a result of the Configuration Mgmt review	9-07-99
99-SE-OT-44	1,2	TS CHG 386 UFSAR FN 99-056		Specifies the correct code edition for the MS safety valves, which is Section III of the ASME B&PV Code, 1968 Edition with Addenda through Winter 1970	9-21-99
99-SE-OT-45	2	Reload Safety Eval. Tech Rpt NE-1210 (Rev. 0)		Refueling & operation of North Anna Unit 2, Cycle 14, Pattern SU– incorporates the following features described in Tech Rpt NE-1210: reconstituted F/A 3A4, short poison stack BP rods, & vibration suppression damping assemblies	9-23-99
99-SE-OT-46	1,2	UFSAR FN 99-021		Changes UFSAR sections that discuss feedwater, condensate, steam generator blowdown, & condensate polishing systems as a result of the Configuration Management review	9-30-99
99-SE-OT-47	1,2	TS CHG 357 UFSAR FN 99-054		Revises laboratory testing requirements for testing carbon samples used in the control room emergency habitability & safeguards area ventilation systems to be consistent with requirements of ASTM D 3803-1989.	9-30-99
99-SE-OT-48	1,2	TS CHG 373 UFSAR FN 99-055		Relocates Section ¾.6.4.3 to the TRM and corrects values stated in UFSAR section 15.3.5 for total curie content assumed released in WGDT rupture.	9-30-99
99-SE-OT-53	1,2	UFSAR FN 99-049 CTS 02-99-2124-003	SW	Changes Section 2.4.11.6 to document how SW spray array nozzles are maintained unobstructed due to icing of the nozzles during freezing precipitation or from spray drift from operating arrays onto idle arrays. Also deletes the statement that a minimum flow of water is maintained through the nozzles from the SW screen wash system.	10-12-99
99-SE-OT-54	1,2	Chemistry Special Order #99-009	BC	Approved interim use of Calgon Deposit Penetrant CL-363 in the BC system to minimize effects of oil in the BC system	10-13-99

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S.E. #	Unit	Document	System	Description	SNSOC Date
99-SE-OT-55	1,2	ET CEE 99-0014 TS CHG #374 DR N-99-1526, PPR 99-027		Station Battery Charger Sizing Evaluation, Rev. 0 The ET shows that the majority of battery chargers require a capability > 200 ampere minimum test value. Previous testing demonstrates that the chargers are capable of carrying required loading except chargers 1-III, 1C-II, 2-III, & 2C-II. Procedure changes are being implemented for outlying chargers to ensure design requirements are met.	10-28-99
99-SE-OT-56	1,2	UFSAR FN 99-047		Revises description of loss of normal feedwater & loss of AC power to station auxiliaries accident analyses	11-18-99
99-SE-OT-57	1,2	UFSAR FN 99-061		Changes UFSAR sections that discuss the North Anna containment atmosphere cleanup system as a result of the Configuration Mgmt review	11-23-99
99-SE-OT-58	1,2	UFSAR FN 99-051		Changes UFSAR sections that discuss North Anna's sampling & primary vents & drains system as a result of the Configuration Mgmt review	11-30-99
99-SE-OT-60	1,2	UFSAR FN 99-014		Changes UFSAR sections that discuss the NAPS civil, structural, & seismic topics as a result of the Configuration Mgmt review	12-07-99
99-SE-OT-61	1,2	UFSAR FN-99-057		Changes UFSAR sections that discuss North Anna's nuclear control system as a result of Config. Mgmt. review	12-09-99
99-SE-OT-62	1,2	UFSAR FN-99-053		Changes UFSAR sections that discuss North Anna's component cooling system as a result of Config. Mgmt. review	12-09-99
99-SE-OT-63	1,2	UFSAR FN 99-070 Section 15.3.1, 15.4.1		Incorporates a summary of the PCT penalties & benefits for the small break & large break LOCA which are reported per 10CFR50.46 requirements	12-28-99

99-SE-OT-01

Description
Technical Specification Change Request No. 323A
Change will supplement Technical Specification Change Request No. 323 to identify that the 14 day allowed outage time (AOT) Action Statement for the backup nitrogen accumulators is risk-informed and will require invoking the Configuration Risk Management Program (CRMP) when using/entering the AOT.

Summary
This Technical Specification change is administrative in nature. On October 25, 1995, Virginia Power Letter s/n 95-498 entitled, "Proposed Technical Specifications Changes, Allowed Outage Time for PORV Nitrogen Accumulators and Separate Actions for PORV Inoperability" was submitted to the NRC requesting changes to provide a separate action statement for the inoperability of the backup nitrogen accumulator for the pressurizer PORVs. This action statement was supported by deterministic and risk insights whereby the NRC at that time had not finalized their position on risk-informed Technical Specifications and did not require the implementation of a risk management process for risk-informed Technical Specifications.

Since that time, Virginia Power recently received approval of a risk-informed Action Statement for the Emergency Diesel Generators. As part of the implementation of those Technical Specification Amendments and as requested by the NRC, a Configuration Risk Management Program (CRMP) was incorporated into the Administrative Section 6.0 of the Technical Specifications. Additionally, the Action Statement was annotated to identify it as "risk informed" and the Bases was changed to discuss the risk management aspects.

Therefore, to ensure consistency in the implementation of risk-informed Technical Specifications, these changes identify that the proposed 14 day nitrogen accumulator AOT Action Statement is "risk-informed," ensure that the CRMP is invoked when using/entering the 14 day AOT, and revise the Bases to discuss the risk management aspects. Plant systems and their operation are not affected by the changes. The changes do not affect the Chapter 15 accident analysis or the Environmental Protection Plan.

Since the operation of the plant and its systems are not being modified nor are operability requirements for any system or component being changed:

- There is no increase in the probability of occurrence for any accident or the consequences of any accident previously analyzed.

- The change does not create the possibility for any accident or malfunction of a different type.

- The margin of safety as defined in the basis of any Technical Specification is not decreased.

Therefore, there is no unreviewed safety question generated by this administrative change to the Technical Specifications

99-SE-OT-02

Description
UFSAR Change FN 99-007
A change to UFSAR section 6.3.2.1.1 is proposed to provide clarification that, although the run of piping between the first and second safety injection accumulator check valve is credited in demonstrating compliance with the Technical Specifications minimum Safety Injection Accumulator (SIA) volume requirement, the minimum boron concentration requirement does not apply to this portion of the credited volume.

Summary

Introduction

A recent compliance issue was identified concerning assumptions that were made in the LOCA analysis regarding the accumulator boron concentration requirements per Tech Spec 3.5.1. In order to ensure verbatim compliance, North Anna is proposing a change to UFSAR section 6.3.2.1.1 to clarify that although the run of piping between the first and second safety injection accumulator check valve is credited in demonstrating compliance with the TS minimum SIA volume requirement, the minimum boron concentration requirement does not apply to this run of piping. Applicable accident analyses (identified in ET-NAF-980076) have explicitly modeled RCS inleakage into this run of piping, which is not sampled, and the resulting boron concentration reduction.

Discussion
The operability of each SIA ensures that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event that the RCS pressure falls below the pressure of the SIAs. Technical Specifications Limiting Condition for Operation (LCO) 3.5.1.c states that each SIA shall be operable with between 2200 and 2400 ppm of boron. Surveillance Requirement 4.5.1.b states that each SIA shall be demonstrated operable at least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 5 percent of tank volume by verifying the boron concentration of the SIA solution.

Station SIA tank curves correlates the indicated SIA level (%) to the Technical Specifications minimum and maximum levels. A review of the basis for these curves identified that the implementing procedures do not properly account for the boron concentration in the entire SIA tank, which includes the volume between the two SIA check valves as well as the tank volume. The surveillance techniques for SIA sampling do not sample the volume between the two check valves down-stream of the SIA, although this volume is considered part of the SIA volume required by Technical Specification 3.5.1.c. The initial calculations, consistent with the original and current Safety Analysis, used the 94 feet of piping between the SIA and the check valve on the Cold Leg RCS Loop as part of the contained volume in the SIA. The piping length from the SIA tank to the first check valve is approximately 12 feet.

Changes to UFSAR section 6.3.2.1.1 will clarify that, although the run of piping between the first and second SIA check valve is credited in demonstrating compliance with Technical Specification 3.5.1 minimum SIA volume requirement, the minimum boron concentration requirement does not apply to the run of piping between the first and second SIA check valve. This clarification accommodates the potential for inleakage from the RCS into the unsampled portion of the volume credited in meeting the TS 3.5.1 minimum SIA volume requirement.

A review of the design and licensing basis requirements for the minimum SIA boron concentration specified in TS 3.5.1 revealed that the boron concentration must meet the design requirements for post-LOCA subcriticality and post-LOCA sump pH for iodine retention and minimization of chloride-induced stress corrosion cracking of stainless steel components inside containment. The current design and licensing basis calculations which demonstrate post-LOCA subcriticality and acceptable post-LOCA sump pH have explicitly considered RCS inleakage into the piping between the first and second SIA check valve, which may result in a reduced boron concentration in this portion of the volume credited in meeting the TS minimum SIA volume requirement. Although the current design and licensing bases calculations have explicitly considered the potential for inleakage from the RCS into this portion of the credited SIA volume, this potential raises a verbatim compliance concern for TS 3.5.1. Therefore, clarification is being made to UFSAR section 6.3.2.1.1 to address this issue.

Conclusions

The UFSAR section 6.3.2.1.1 change has been reviewed against the criteria of 10 CFR 50.59, and it has been determined that an unreviewed safety question does not exist.

1. The proposed change does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis Report (SAR):

   SIA boron concentration is not an accident initiator or a precursor to any equipment malfunction important to safety previously evaluated in the SAR. Thus, the proposed change does not increase the probability of occurrence of events previously evaluated in the SAR.

   The SIA boron concentration is a design input into the post-LOCA shutdown reactivity and post-LOCA sump pH calculations. The design and licensing basis post-LOCA shutdown reactivity and sump pH analyses are assumed to be initiated from a hot full power condition, at which the RCS boron concentration is (by definition) equal to the hot full power critical boron concentration. The post-LOCA shutdown reactivity and post-LOCA sump pH analyses assume that the boron concentration of the unsampled portion of the SIA discharge line is equal to the hot full power critical boron concentration. This assumption is conservative, since in-leakage from the RCS into the unsampled portion of the credited SIA volume which may occur over an operating cycle will not cause the boron concentration of this volume to be reduced below the hot full power critical RCS boron concentration. Thus, the proposed UFSAR section 6.3.2.1.1 change does not increase the consequences of events previously evaluated in the SAR.

   A reduction in the boron concentration of the unsampled portion of the credited SIA volume due to in-leakage from the RCS does not itself constitute a malfunction of safety related equipment (i.e., the SIAs), since such in-leakage has been explicitly considered in the safety analyses which constitute the design and licensing bases for the Technical Specifications minimum SIA boron concentration.

2. The proposed UFSAR section 6.3.2.1.1 change does not create the possibility of an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report. Specifically, the possibility of a boron dilution event due to inadvertent SIA discharge is not created by accommodating the potential for in-leakage from the RCS into the unsampled portion of the SIA volume which is credited in meeting the minimum Technical Specifications SIA volume requirement. The effect of SIA discharge under design basis large break LOCA conditions with a reduced boron concentration in the SIA discharge line due to RCS in-leakage has been explicitly evaluated in affected accident analyses. Inadvertent discharge under conditions other than design basis LOCA conditions is not considered credible, since inadvertent SIA discharge is administratively precluded. That is, the discharge MOV is procedurally disabled in the closed position prior to achieving an RCS pressure that could result in inadvertent SIA discharge. Moreover, the unsampled portion of the SIA volume (approximately 1100 gallons in 3 SIAs) is a small fraction of the total SIA volume (approximately 23,000 gallons), and a very small fraction of the RCS volume (approximately 70,000 gallons). Thus, although not explicitly analyzed, this small volume of water subject to in-leakage from the RCS does not present the potential for significant reactivity addition in the event of inadvertent SIA discharge. Thus, the proposed change does not create the possibility of an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report.

3. The proposed UFSAR section 6.3.2.1.1 change does not result in a reduction in margin of safety as defined in the basis for any Technical Specifications. The accident analyses which assume a

minimum boric acid concentration in the SIAs explicitly accommodate the potential for in-leakage from the RCS into the unsampled portion of the SIA volume which is credited in meeting the minimum Technical Specifications SIA volume requirement. Therefore, this change simply clarifies the existing safety analysis bases for the minimum SIA boric acid concentration requirement, and does not constitute a reduction in the margin of safety as defined in the basis for any Technical Specifications.

99-SE-OT-03

Description

North Anna UFSAR Change Request No. FN 98-045

UFSAR Change Request No. FN 98-045 contains a list of changes, some editorial in nature, that need to be corrected or clarified in the UFSAR sections that discuss North Anna's emergency diesel generator (EDG) system. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's EDG system.

Summary

The following **editorial/administrative changes** are proposed. The change item subnumber identifies proposed changes. These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any EDG system components or any other structures, systems or components (SSC's) operation or performance. These changes do not result in an unreviewed safety question. They are editorial in nature and therefore, do not reduce the margin of safety or change the probability or consequences of an accident as described in the UFSAR.

Change Item Sub # 2

Change UFSAR Section 3A.108 to indicate that conformance to Regulatory Guide 1.108 is discussed in the Technical Specifications and not in UFSAR Section 8.3.1.1.1. The description of the conformance to Regulatory Guide 1.108 in UFSAR Section 8.3.1.1.1 has been identified as redundant information since it was identified in the Technical Specifications and was subsequently removed from Section 3A.108 as part of UFSAR Change Package FN 92-065. The change package did not identify and therefore did not change the reference in Section 3A. Conformance to the requirements of Regulatory Guide 1.108 is discussed in Table 4.8-2 of the Technical Specifications for both North Anna Units 1 and 2.

Change Item Sub # 4

Add a statement to the UFSAR describing the ability to use the Alternate AC (AAC) diesel generator when an emergency diesel generator is inoperable. UFSAR Change Package FN 95-040 was included as part of Technical Specification Change Request 318A and is supported by Safety Evaluation 95-SE-OT-50. These changes were approved in Amendment 215 for Unit 1 and Amendment 195 for Unit 2. The markups of the applicable UFSAR pages were included and approved as part of the change request. The changes identified in that package are being incorporated into this change request.

Change Item Sub # 11

Revise the description of the minimum capacity for the emergency diesel generator fuel oil day tank to reflect a one-hour capacity instead of a three-hour capacity. The description of the minimum capacity for the emergency diesel generator fuel oil day tank was changed from three hours to one hour as part of Technical Specification Amendments 203 and 184 issued on 1/17/97. This change was initiated by Technical Specification Change Request 324 and was supported by Calculation SE-0018 and Safety Evaluation 96-SE-OT-003. This statement was not identified as part of the associated UFSAR Change Package (FN 97-018) and therefore was not updated.

Change Item Sub # 15

Identify that the lube oil temperature alarm setpoint is 107% of normal operating temperature instead of 106%. The values for the trip and alarm setpoints as described in the UFSAR are correct. The normal operating lube oil temperature for the emergency diesel generator is 215°F according to Coltec Engineering Report R-6.06-0260. The lube oil high temperature shutdown setpoint is 230°F per the NAPS Setpoint Document. The difference between these two values corresponds to 107% of design operating temperature and not 106%. The rewording of the statement removes ambiguity as to whether the alarm or the trip setpoint is 107% of the design operating temperature. No setpoints are altered as a result of this change. Only the difference in percent as described in the UFSAR is changed.

Change Item Sub # 18

Identify statements that are historical and are not intended or expected to be updated for the life of the plant. Tables 8.3-6 and 8.3-7 were developed during the initial licensing phase to ensure compliance with Position 2 of Safety Guide 9. The paragraphs in Section 9.5.5.3 identify testing that was originally performed by the manufacturer and comparisons with other similar units. The tables and the paragraph are historical in nature and are not intended to be updated for the life of the plant. These changes are enhancements provided as part of the UFSAR Improvement Project. Correction of a typographical error is also included in this change.

Change Item Sub # 21
Clarify the source of the dimensions used in the calculations listed in Table 9.5-4. Table 9.5-4 contains a summary of buoyancy calculations for the emergency diesel generator (EDG) buried fuel oil tanks. Some of the dimension values used in the calculations come from Figure 9.5-3. The summary of the calculations does not specifically identify which values are related to which dimensions. While the existing statement is not incorrect, rewording it will remove any ambiguity.

Change Item Sub # 25
Change the reference to the air receivers associated with the emergency diesel generator air start system from "air reservoirs" and "air tanks" to "air receivers." The use of the terms "air reservoirs," "air tanks," and "air receivers" are used synonymously and inconsistently throughout the UFSAR when referencing the air receivers associated with the emergency diesel generator air starting system. While the terms "air reservoir" and "air tank" are technically correct in that they do store air, the term air receivers is the proper usage. This change will provide consistency within the UFSAR, between the UFSAR and the System Design Basis Document (SDBD) and will facilitate electronic searches of the UFSAR. This change does not involve any changes to the station. Only the references to the air receivers in the UFSAR are affected.

Change Item Sub # 26
Change the emergency diesel generator (EDG) compressor relief valve lift setpoint pressure specified in the UFSAR from 255 psi to 275 psi and change the compressor stop setpoint specified in the UFSAR from 245 psi to 240 psi. Change compressor start from "on increasing pressure" to "on decreasing pressure." EWR 84-049 changed the EDG compressor relief valve setpoints to 275 psi. This change to the UFSAR was identified as part of the package and was supported by a SNSOC approved Safety Evaluation but was not implemented. No evidence has been found to support the shut-off pressure of 245 psi identified in the UFSAR. The shut-off pressure appears to have been 240 psi since before startup. Preoperational procedure 1-PO-1, dated 1/21/76, contains calibration instructions to adjust the air compressor shut-off pressure to 240 psi. Changing the word "increasing" to "decreasing" corrects a typographical error. The air compressors will start once the pressure in the receivers falls to the preset value of 200 psi.

Change Item Sub # 30
Change reference from 11715-FB-4C 'Flow Diagram Yard-Fuel Oil Lines Sh-3' to 11715-FB-035A 'Flow/Valve Operating Number Diagram Yard - Fuel Oil Lines Sheet 2'. Reference 4, 11715-FB-4C, was voided per IR-7224 and incorporated into Drawing 11715-FB-035A as documented on the final (voided) revision of 11715-FB-4C.

Change Item Sub # 31
Revise table to remove references to vendor's internal documentation and instructions. These statements were copied verbatim from the original design specification. While the affected statements are correct in the context of the original source (Specification NAS-0290), the references are not associated with the UFSAR and are therefore inappropriate.

Change Item Sub # 33
Change "...on the emergency bus were..." to "...on the emergency bus was..." This is an administrative change to restore this historical statement to its original form in the FSAR. The wording in the original FSAR uses the word "was" not "were."

Summary:

The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems, or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, or a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems, or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the basis for the Technical Specifications. With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined to not represent an unreviewed safety question.

The following non-editorial changes are proposed. A change item subnumber identifies proposed changes. The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub # 1
Reword the paragraphs that describe the exceptions taken to Safety Guide 9 to remove ambiguity and to correct an incorrect statement. The statement "For the worst loading case, the initial load block in the diesel-generator loading sequence is as large as practicable in order to minimize the length of the loading sequence" is an introductory statement to an exception taken against the safety guide and is unclear and unnecessary. The "worst loading case" is not defined and "minimizing the length of the loading sequence" is not relevant to the exception. The statement that "The load group voltage profile may differ if the loss of power occurs within the first 5 sec following a DBA signal" is incorrect. Calculation EE-0027 provides the analysis for the emergency diesel generator load sequencing. If a loss of power occurs within the first 5 seconds following a DBA signal then the logic analysis holds and there is no change in the load group voltage profile. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 3
Clarify the statement to remove ambiguity concerning emergency diesel generator loading. Technical Specification 4.8.1.1.2 requires testing to ensure the emergency diesel generator (EDG) is started and is providing power within 10 seconds of receiving an emergency start signal. While the diesel is loaded

within 1 minute, depending on the accident scenario, not all loads will be powered within the first minute. The existing wording could be interpreted to mean that the EDG is fully loaded (i.e. all loads) within one minute. Rewording this statement will remove ambiguity while retaining the emergency function of the EDG. This change does not affect the load shedding, load sequencing, or the operation of the EDG. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 5
Revise the description of the emergency diesel generator start delay associated with a degraded voltage signal to indicate that with a safety injection signal present, the 56-second start delay is replaced by a 7.5-second delay. The current statements are not incorrect but they lack detail. The existing statements do not identify that after the safety injection signal has been received and the emergency diesel generator has started, the 56-second loading delay is bypassed and replaced by a 7.5-second delay if a 90% degraded voltage condition exists on the bus. The bypass circuitry is shown on Electrical Drawings 11715-FE-21T and 11715-FE-21U for Unit 1 and 12050-FE-21T and 12050-FE-21U for Unit 2. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than those previous evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 6
Clarify the description of the load shedding of the 480-V feeder breakers in the motor control centers. These statements discuss the 480-volt emergency bus load shed scheme implemented by DCP 84-36-3. While the statements are correct, they do not include all loads that are shed. There are other 480V loads beyond the service water valve house heating and ventilating loads that are shed on a loss of offsite power. These proposed changes to Section 8.3 will serve to address the fact that load shedding affects 480V components without addressing specific systems while the proposed changes to Section 9.4, which discusses the specific systems, will clarify the fact that the load shedding includes the heaters as well as the ventilation fans. The load shedding associated with the emergency diesel generators (EDGs) is not affected by this change. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than those previous evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 7
Clarify the description of the operation of the emergency diesel generator output breaker and identify the differences between Unit 1 and Unit 2. The existing statement is not clear in that the generator breaker operation in this situation is automatic and the 95% voltage permissive is required whether or not a degraded or undervoltage condition exists. This function is depicted on Electrical Drawings 11715-ESK-11C Sheet 4, 11715-FE-21AG, 11715-ESK-11CA Sheet 4, and 11715-FE-21J for Unit 1 and 12050-ESK-11C Sheet 4, 12050-FE-21AJ, 12050-ESK-11CA Sheet 4, and 12050-FE-21J for Unit 2. There are no bus-tie breakers for Unit 2, so this portion of the statement is rewritten to apply to Unit 1 only. This change requires no changes to the station and is provided to update the UFSAR to the as-built condition of the plant. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes involve

only changes to the UFSAR and not the facility, there is no possibility for an accident or malfunction of a different type from those previously evaluated in the safety analysis report being created. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 8
Revise the UFSAR statement to reflect that the emergency diesel will be incapable of responding to an emergency start signal when the control room switch is in the "MAN REMOTE" position. The statement that the emergency diesel will not respond to an automatic start signal if the control switch is not in the "AUTO REMOTE" position is incorrect. There are three positions on the control switch, "AUTO REMOTE," "MAN REMOTE," and "MAN LOCAL." When the control switch is placed in any position other than "AUTO REMOTE" the condition will be annunciated. However, when the control switch is placed in the "MAN REMOTE" position, the emergency diesel will still respond to an emergency start signal. This function is described in the Nuclear Control Room Operators Development Program (NCRODP-55), the System Design Basis Document, and is supported by Electrical Drawing 11715-ESK-11C Sheet 1 Revision 14 for Unit 1 and 12050-ESK-11C Sheet 1 Revision 20 for Unit 2. The control switch contacts are defined on Electrical Drawing 11715-ESK-3J Sheet 1 Revision 6 for Unit 1 and 12050-ESK-3J Sheet 1 Revision 6 for Unit 2. This change does not affect the operation of the emergency diesel generator (EDG) nor the ability of the operators to control the EDG. Only the behavior of the control switch as described in the UFSAR is affected. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 9
Revise the description of the control room annunciation to reflect that problems with the emergency diesel generator are annunciated either directly if an alarm exists for the specific problem or via an emergency diesel generator Trouble alarm. The annunciator window in the main control room indicates only emergency diesel generator Trouble. The specific cause of the trouble can be identified by the local annunciator panel. The existing wording could be interpreted that each of the identified alarms has a corresponding unique alarm in the main control room. Rewording this statement will eliminate any ambiguity concerning the alarms. This change does not involve any alterations to the plant or any procedural requirements involving responses to alarms. This change clarifies the description of the alarms associated with the EDG as described in the UFSAR. This issue has been previously evaluated by the NRC and found to be acceptable as documented in SER Supplement No. 10 Dated April 1980. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes involve only changes to the UFSAR and not the facility, there is no possibility for an accident or malfunction of a different type than any previously evaluated in the safety analysis report being created. No analyses are affected by this change; subsequently the margin of safety as defined in the basis for any technical specification is not reduced. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 10
Add a paragraph identifying that, in response to a problem identified at Surry Power Station, the emergency diesel generator load sequencing for a loss of offsite power subsequent to a LOCA has been evaluated by Virginia Power. The evaluation identified that a loss of offsite power (LOOP) subsequent to a LOCA would not overload the emergency diesel generators. Information Notice 93-17, "Safety Systems Response to Loss of Coolant and Loss of Offsite Power," identified a problem with the Surry Power Station load sequencing associated with a LOOP subsequent to a LOCA. The issue of a LOOP subsequent to a LOCA is identified in NUREG 0933 as Issue 17, "Loss of Offsite Power Subsequent to a LOCA." The North Anna licensing basis considers a LOOP to occur coincident with a LOCA. The NRC has indicated that

only a LOOP associated with the same initiating events as the LOCA is of concern. This paragraph is being added to address the fact that while the load sequencing has been evaluated at North Anna and has been determined by Virginia Power to be adequate in the case of a LOOP subsequent to a LOCA, that particular sequence is not part of North Anna's licensing basis. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes involve only changes to the UFSAR and not the facility, there is no possibility for an accident or malfunction of a different type than any previously evaluated in the safety analysis report being created. No analyses are affected by this change; subsequently the margin of safety as defined in the basis for any technical specification is not reduced. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 12
Revise the description of the power supplies for the emergency diesel generator ac fuel oil transfer pump and its backup pump to specify that they are powered from different motor control centers. The current wording is technically correct, however it could be interpreted that the ac fuel oil transfer pump and its backup are powered from the same separate emergency motor control center. The ac fuel oil transfer pump and its backup are powered from different emergency motor control centers. The Unit 1 EDG fuel oil pumps 1-EG-P-1HA, -1HB, -1JA and -1JB are powered from emergency MCC's 1H1-4, 1H1-2N, 1J1-1, and 1J1-2S, respectively (per Drawings 11715-FE-1P, -1Q, -1R and -1Z). The Unit 2 EDG fuel oil pumps 2-EG-P-2HA, -2HB, -2JA and -2JB are powered from emergency MCC's 2H1-1, 2H1-2N, 2J1-1, and 2J1-2N, respectively (per Drawings 12050-FE-1N, -1P and -1Q). This change will remove ambiguity concerning the power sources for the transfer pumps. This change does not affect any plant equipment or procedures. This change clarifies the power sources used by the fuel oil transfer pumps as described in the UFSAR. Since the proposed changes do not involve physical changes to the facility, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than any evaluated previously in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 13
Identify the conditions that cause the emergency diesel generator output breaker to open and the engine to shut down as "trips" instead of "devices." Remove start failure and generator overexcitation from the list of engine trips. This section contains a list of functions that cause the generator output breaker to open and a list of functions that cause the emergency diesel to trip. The items listed are functions and not physical devices. Generator overexcitation will cause the generator output breaker to open but will not trip the engine. This protective function is bypassed during an emergency start. This feature is described in the Nuclear Control Room Operators Development Program (NCRODP-55), in the System Design Basis Document, and is supported by Electrical Drawings 11715-ESK-11C & 11715-ESK-11CA, Sheets 2 & 3 for Unit 1 and by 12050-ESK-11C & 12050-ESK-11CA, Sheets 2 & 3 for Unit 2. Start failure is not considered an engine trip as described in UFSAR Section 9.5.6.2. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. While this change does affect the setpoint, the jacket water temperature is not associated with the basis for any technical specification and thus, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 14
Change the emergency diesel generator (EDG) jacket cooling water high temperature alarm setpoint identified in the UFSAR from 200°F to the actual value of 195°F. The jacket water high temperature alarm setpoint is 195°F, per the setpoint document. No evidence that the alarm setpoint has ever been anything other than 195°F has been found. An alarm setpoint of 195°F is conservative relative to the 200°F quoted in

the UFSAR in that it results in an earlier warning of increasing water jacket temperature. This change does not result in a change to the station. The change only updates the UFSAR to reflect the current configuration of the station. The alarm setpoint of 195°F has been previously evaluated by the NRC during the 1991 Electrical Distribution System Functional Inspection (EDSFI) and has been found to be acceptable as documented in inspection report numbers 50-338/92-21 and 50-339/92-21. Since the proposed changes do no involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. While this change does affect the setpoint, the jacket water temperature is not associated with the basis for any technical specification and thus, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 16
Replace the emergency diesel generator (EDG) overspeed setpoint of 1050 rpm corresponding to 117% of nominal speed with the setpoint range of 1035 rpm - 1053 rpm which corresponds to 115% - 117% of nominal speed. The purpose of the overspeed trip is to shut down the emergency diesel generator should an overspeed condition exist. The new range maintains the current value as the maximum with the lower end of the range still high enough to prevent inadvertent trips. Safety Guide 9 states that "Protection of the diesel generator set from excessive overspeed, which can result from the loss of load, is afforded by the provision of a diesel generator set trip, usually set at 115 percent of nominal speed." The nominal speed of the diesel generator is 900 rpm. The value in the UFSAR identifies the overspeed setpoint as 117% which corresponds to a speed of 1053 rpm. This value corresponds with the maximum allowable setting based on 0-MPM-0701-04, Maintenance Run Test Procedure of emergency diesel generator. The minimum allowable setting in the procedures is 115% or 1035 rpm which corresponds to the recommendations given in the regulatory guide and the vendor manual, Diesel Stationary Fairbanks Morse Instructions 3800TD8-1/8, Fairbanks Morse Opposed Piston Engines Model 38TD8-1/8. This change does not result in a change to the existing setpoint, procedures or result in a modification to the station. Only the setpoint identified in the UFSAR is being replaced with a setpoint range. This range maintains conformance to the range identified in Safety Guide 9. Since the proposed changes do no involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 17
Clarify the basis for the emergency diesel generator differential setpoint. The existing statement was technically correct at the time it was written but it no longer reflects the analysis methodology for the generator differential setpoint. The current criteria (from Procedure S5, "Bus Differential Relaying," of the Circuit Calculations Methods Manual) is that the minimum steady-state fault current should be at least 10 times the chosen setpoint. This criteria takes into account the current transformer error discussed in the existing UFSAR statement. Calculations EE-0338, EE-0345, and EE-0361 show that the fault currents are slightly greater than 11 times the setpoint of 144A, meeting the established criteria. The generator is, therefore, protected from internal faults while avoiding spurious relay actuation due to current transformer error. This change does not result in a change to the setpoint, but to the description of the methodology used to determine it as described in the UFSAR. Since the proposed change does not involve a physical changes to the facility or a procedural change, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change involves only a change to the description given in the UFSAR, there is no possibility of creating an accident or malfunction of a different type that any evaluated previously in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 19

Add a note to the title of the tables indicating they were provided as a loading scenario during the initial licensing phase of review to demonstrate compliance with Position 2 of Safety Guide 9 and that they are not intended to be updated. Return the tables to their original configuration in the FSAR. These tables were originally provided to ensure compliance with Position 2 of Safety Guide 9 as stated in Section 8.3.1.1.1 and are historical in nature. Position 2 of the safety guide states "At the operating license stage of review, the predicted loads should not exceed the smaller of the 2000-hour rating, or 90 percent of the 30-minute rating of the set." These tables documented the compliance with that requirement by providing the emergency diesel generator (EDG) loading schedule based on a specific scenario. These tables were not intended to be updated to reflect the current EDG loading schedule. The current EDG loading schedule is documented and maintained in Calculation EE-0027. Removing the additional entries in the tables will restore them to their original form. These entries were added in an attempt to update the table to match the configuration in the plant. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 20
Reword statement to remove limitation on the source of the fuel oil for the emergency diesel generator (EDG). The current statements indicate that fuel oil for the EDG is available in Mineral, Virginia and that if additional fuel oil is needed, it will be obtained from Mineral. While fuel oil is available at that location, Virginia Power does not currently have a contract with any supplier in Mineral. Rewording these statements will identify that other sources of fuel oil are available but will not identify a specific supplier. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 22
Revise the description of the emergency diesel standby heaters to indicate that while the temperature of the jacket water and lube oil may vary, the heaters will maintain the temperature above the alarm setpoint. The existing statements indicate that in the standby mode, the temperature of the lube oil and jacket water for the emergency diesel is kept between 130 and 135 degrees F. This temperature range is an average. The primary heating is provided by the jacket water heater. Field Change No. 3 to DC-81-S05A raised the lube oil heater setpoint to "ON" at 150 degrees F and "OFF" at 155 degrees F to maintain the overall lube oil temperature in standby mode at approximately 130 - 135 degrees F. The requirement to maintain the temperature is based on the need to meet the quick starting requirements. While the average temperature is approximately 130 to 135 degrees F, the temperatures closest and furthest from the heaters will not fall within this range. This is acceptable provided the minimum temperature does not fall below the vendor recommended value of 90 degrees F. The alarm setpoint is currently set at 90 degrees F. Operator Log 1/2-LOG-6F requires the temperature of the lube oil to be above 110 degrees F. This change affects only the description of the heaters in the UFSAR. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the temperatures identified in the UFSAR and do not affect any setpoints in the facility, there is no possibility of creating an accident or malfunction of a different type that previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced

Change Item Sub # 23

Revise the description of the emergency diesel generator makeup water source to indicate that it is primary grade water and not domestic water. The UFSAR is correct in that domestic water was initially used in the emergency diesel generator jacket cooling system. Due to problems with elevated corrosion rates associated with the domestic water, Engineering has recommended the use of primary grade water as makeup water. This process is controlled by procedures 1/2-MOP-6.90 and 1/2-MOP-6.91. These procedures already require the use of primary grade water for coolant makeup so no additional procedural changes are required. Since the emergency diesel generator is not an accident initiator, there is no increase in the probability of occurrence of an accident. The use of primary-grade makeup water reduces the impurities introduced into the cooling system thereby reducing the probability of corrosion. This water quality improvement results in an increase in the reliability of the system and thus there is no increase in the probability of a malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the emergency diesel generator is not being operated in a different manner and failure of the diesel cooling system is addressed in the safety analysis report, there is no possibility for an accident or malfunction of a different type than any previously evaluated in the safety analysis report. The margin of safety is associated with setpoints. This change does not involve any setpoints. Therefore, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 24
Delete the statement "This arrangement provides redundancy in the air-start system." since the emergency diesel generator (EDG) air receivers are separate and independent but not redundant. Clarify the operation of the EDG air-start system. The redundancy statement is not true relative to the capability to provide five 2-second starts from each air receiver. Redundancy implies the ability of each air receiver to independently provide the capability for five 2-second starts. The normal operating pressure in the air receivers is between 200 and 240 PSIG. The five 2-second start criteria was based on a starting air pressure of 250 PSIG and a diesel manufacturer recommended minimum start pressure of 150 PSIG and was tested during the preoperational checks. This original purchase specification criteria has no safety significance since the EDGs are required to start and accept electrical load in less than or equal to 10 seconds. If an engine fails to start on the first attempt, the accident analysis requirement cannot be met (start within 10 seconds) and that engine will be considered the single active failure in the onsite emergency power system. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility for creating an accident or malfunction of a different type than any evaluated previously in the safety analysis report. Since no setpoints are being changed, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 27
Change the emergency diesel generator (EDG) radiator airflow rate to match the vendor-specified values. Update the total airflow into the EDG rooms as shown on Figure 9.5-8. 173,000 cfm was the value given in the original purchase specification when the emergency diesel generators (EDGs) were ordered. The design flow rate following an upgrade from a 1979 fan modification (DCP 79-S62) is 154,000 cfm. Virginia Power Technical Report 0098, EDG Room Temperature Study and Fairbanks Morse Engine Division Vendor Report #R-6.06-0260 both quote the 154,000 cfm value for airflow over the radiators. The total airflow into the room as depicted on Figure 9.5-8 is also being decreased by 19,000 cfm (173,000 - 154,000). Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and do not affect any equipment in the facility, there is no possibility of creating an accident or malfunction of a different type that previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced

Change Item Sub # 28
Add a paragraph to qualify the use of 104°F as a maximum operating temperature for the emergency diesel generators. Technical Report ME-0105 shows that at full load, a room temperature rise of 7-8°F is expected. With an outside ambient temperature of 104°F, the temperature at the inlet of the radiator may

exceed the specified maximum temperature of 110°F thereby causing the 195°F jacket water high temperature alarm point to be exceeded. Engineering has evaluated this condition as documented in Technical Report ME-0105 and supported by Safety Evaluation 96-SE-OT-53 and has determined this to be acceptable for short periods of time since only the alarm point may be exceeded and the shutdown temperature of 205°F would not be exceeded. The high temperature trip is only applicable during testing and normal operation of the diesels and is bypassed during emergency starts. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 29
Revise the discussion of the emergency diesel generator (EDG) exhaust line to clarify that the bypass portion is missile protected and is always open. There are two exhaust paths for each of the EDGs. One path is through an exhaust silencer while the other path is via an open pipe (i.e. a bypass). The bypass line is missile protected while the exhaust silencer path is not. Design Change 59-DCP-93-241 removed the valve used to select the exhaust path on each of the EDGs so essentially all exhaust is now through the missile protected bypass lines. Rewording these sentences clarifies that even if the exhaust silencer should become damaged, the missile protected bypass line will continue to provide an exhaust path. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 32
Correct the transcription error associated with the weight of the concrete slab covering the underground fuel oil tanks. Replace the reference to the "left tank" with the tank's associated mark number, "EG-TK-2A." The correct value for the effective weight of the concrete slab is given in calculation 11715-STR-012 as 2104.4 lb/ft. This value matches the value calculated from the equation given in the table. The existing value was transcribed incorrectly. The reference to the "left tank" is based on the orientation shown on Drawing 11715-FC-29C. Changing this reference to EG-TK-2A is more precise. The units given at the top of the table do not match the resultant units based on the equation given in the table. Dimensional analysis results in the units lb/ft. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve only changes to the UFSAR and not the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. The proposed changes do not impact the condition or performance of these structures, systems, or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. Therefore, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not affect the condition or performance of structures, systems, or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the basis for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined to not represent an unreviewed safety question.

99-SE-OT-04

Description
UFSAR Change Request: FN 98-052
Section 10.4.3.3.1 needs a change to remove the Auxiliary Feedwater System (AFW) from the list of systems analyzed for waterhammer loading.

Summary
The proposed change to Section 10.4.3.3.1 of the UFSAR is to eliminate the Auxiliary Feedwater from the listing of systems identified as having been . . . "analyzed for steam-hammer and water-hammer occasional loadings." Elimination of the Auxiliary Feedwater system from this list is based upon the results of a review by Mechanical Engineering documented in ET CME 98-0041, Rev. 0. The ET evaluates the existing analysis that developed waterhammer loads for the AFW system and concludes that calculation results are grossly conservative and based on non-credible assumptions for the pressure wave initiation. Several additional waterhammer initiation scenarios were explored, beyond that identified in the original calculation, and are also shown not to be credible.

The Technical Specifications regarding flow restrictions due to hydraulic transients resulting from a postulated waterhammer event were dispositioned under Docket No. 50-338/80-26 and 50-339/80-31. The NRC reviewed and accepted the results of Virginia Power's Special Test 2-ST-22, "Steam Generator Water Hammer Demonstration Test," (24 June 1980) & Preoperational Test 1-PO-79, "Steam Generator Water Hammer Demonstration Test," (10 March 1977). These tests demonstrated the adequacy of the installed system (S/G "J-Tube" modification) to preclude a waterhammer event in the AFW system. Amendments to the NAPS operating license were issued at that time relaxing flow restrictions after the S/G feed ring "J-tube" modifications were implemented.

Since there is no credible waterhammer initiator, there is no need for the system to be analyzed for steam-hammer and waterhammer occasional loadings. Hence, the AFW system should be deleted from the list in UFSAR Section 10.4.3.3.1.

By clarifying the wording of the UFSAR, no unreviewed safety question exists. This proposed change clarifies the design basis. Furthermore, this change does not affect accident probability, equipment malfunctions, technical specifications, safe shutdown criteria, or the operating license.

99-SE-OT-05

Description

North Anna UFSAR Change Request No. FN 98-050

UFSAR Change Request No. FN 98-050 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss the North Anna Power Station (NAPS) Radiation Monitoring (RM) System. This package is a result of the Integrated Configuration Management Project review of RM system

Summary

The following 8 editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any RM system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

#1 Mark Tables 1.3-8, 9, & 10 as "HISTORICAL." A footnote on Table 1.3-8 will be added to identify that the number of blowdown sample monitors is actually 3 instead of the 2 which was stated in the FSAR table as part of the original license application. These tables contain the same information presented in Table 1.3.1.4.1-5, 6, and 7 of the original NAPS FSAR. The tables are comparison listings of the RM systems for North Anna and various other stations and were used to demonstrate similarity with previously licensed stations. These tables do not require revision to reflect changes in the information of the stations involved. However, one of the values listed in Table 1.3-8 was incorrectly stated in the original FSAR. The number of blowdown sample monitors is stated as 2, which is consistent with the text description in Specification NAS-234. The number of monitors, however, was subsequently revised to 3 per unit and was changed in Tables I and III of the specification. This change was not revised in the text of the specification nor the FSAR table. The plant design incorporated the 3 blowdown sample monitors per unit (Refer to drawings 11715-FM-089B and 12050-FM-089A) prior to initial plant startup. The data in Table 1.3-8 is not to be revised, however, to avoid any future confusion regarding this information, a footnote to Table 1.3-8 will be added that identifies this discrepancy.

#2 Incorporate the following minor editorial changes to correct the NAPS UFSAR to be consistent with station terminology for programs and station systems. The specific changes are: 1) The program that ensures radiological safety at NAPS is called the "Radiological Protection Program," accordingly, change "radiological safety program" to "radiological protection program" in Section 3.1.55.2; 2) Add the word "system" was omitted from the proper system title of the "Chemical Volume and Control System" (CVCS) in Section 11.4.2.15; 3) Correct the misuse of parentheses in the designation of units by properly nesting the parentheses to contain units only in Section 11.4.3.1.2; 4) Correct the term "demin recovery test tank" to read "boron recovery test tank" in Section 11.4.4.1. NAPS has no "demin recovery test tank." The text is referring to the "boron recovery test tank." The text was inadvertently changed from "boron" to "demin" during the implementation of FN 94-10 in UFSAR Revision 25; and 5) The N-16 monitors are referred to as the N-16 leakage detection system, not as a radiation monitoring system, therefore, change "radiation monitoring system" to "leak detection system" in Section 5.2.4.2.

#3 A paragraph will be added in three locations to provide clarification regarding the use of the word "continuous" as it applies to radiation monitoring systems. This will include the N-16 leak detection systems (Chapter 5), the process monitors, effluent monitors, and post-accident monitors (Chapter 11) and area radiation monitors (Chapter 12). Continuous, as used to describe the operation of the systems, means that the monitors provide the required information at all times with the following exceptions: 1) the systems are not required to be in operation because of specified plant conditions per the Technical Specifications, or 2) a system is out of service for testing or maintenance and approved alternate monitoring methods are in place.

The change is intended to be a clarification only. It does not alter the operation of any of the RM systems. It does not alter the design basis or requirements of the radiation monitors. It reflects the actual operation of the monitoring systems, in that, no system is required or considered to be 100% operational, 100% of the time. The systems are designed to gather information on a continuous basis as per their respective specifications. However, in some instances, monitoring systems are either not required to be operational because of the station's operational condition, or the systems may be out of service for testing or repair. Specific requirements for several radiation monitors are provided in the NAPS Technical Specifications. This proposed change does not affect these requirements in any way. The proposed changes clarify the intent of the original statements and do not impact any design basis information or change any station commitment.

#6 Correct various references to sections or drawings in the UFSAR in order to identify the appropriate sections or drawings. These corrections are as follows: 1) Section 11.2.3 is referring to the liquid waste disposal process and the monitoring of the effluent prior to being discharged into the circulating water system. The liquid waste disposal system is discussed in Section 11.4.2.6 not Section 11.6. which is the section referring to the offsite radiological monitoring program; 2) Section 12.2.4 is discussing the ventilation vent "multi-port" sampler particulate and gas radiation monitoring systems. The appropriate UFSAR section that discusses this system is Section 11.4.2.6; and 3) Section 15.4.7.2.4.2 is discussing the radiation detectors in containment that would respond to a fuel handling accident. The referenced drawings are intended to specify the location of the sample line for the containment particulate and gas monitors 1-RMS-RM 159/160 which have a single/common sample line. The correct drawings, which show the sample line connection for these monitors to the containment ventilation system, are reference drawings 3 and 6. These proposed changes to references are editorial and do not impact any design basis information or change any station commitment.

#15 Revise the information in Section 11.4.3.2 regarding the main steam (MS) Nuclear Research Corporation (NRC) monitors to reflect their installation on Unit 2 as well as Unit 1. Additionally, revise the number and type of monitored release pathways to reflect the correct totals. This proposed change is both editorial and administrative. It is editorial because the current UFSAR information was written prior to Unit 2 starting up after TMI. As written, the description of the MS NRC monitors is for Unit 1 only and the Unit 2 MS monitor locations are added in at the end of the section. The proposed revisions consolidates the description of the Unit 1 and Unit 2 main steam NRC monitors and accurately state the current plant configuration. The change is also administrative in that the number of monitored release paths and types was not correctly totaled. Since two DCPs installed the NRC monitors (DCP 79-066 and DCP 80-37A) two separate updates to the UFSAR were made and the "count" of monitored release paths and types became incorrect. The correct count is that there are five paths (Vent Vent A, Vent Vent B, Process Vent, MS, AFWT) and eleven monitors (6-MS, 1-PV, 1-VVA, 1-VVB, 2-AFWT). The proposed changes are editorial/administrative and do not impact any design basis information or change any station commitment.

#19 Revise Section 11.4.4.1 to accurately reflect the change in location of the original Environmental Technical Specifications (ETS) surveillance requirements for the liquid waste sampling and monitoring system which are currently contained in the Offsite Dose Calculation Manual (ODCM). The proposed change is editorial in nature in that it identifies the proper document that contains the liquid waste sampling and monitoring system surveillance requirements. The radiological monitoring requirements in the originally issued Environmental Technical Specifications (Appendix B, to the Unit 1 and 2 OLs) no longer exist. As a result of various regulatory initiatives, they have been removed and placed into owner controlled programs that are required by station Technical Specifications. This change was implemented via NAPS Technical Specification Amendments Nos. 48 and 31 for Units 1 and 2, respectively. The two programs that essentially cover all of the ETS radiological monitoring requirements are:

1. Radiological Effluent Controls Program, and
2. Radiological Environmental Monitoring Program

The radiological monitoring requirements of these programs are included in the ODCM. The ODCM was originally reviewed and approved by the NRC when the ETS requirements were transferred to the ODCM. Updates to the ODCM are sent annually to the NRC. The proposed changes properly identify the location of the subject requirements and do not impact any design basis information or change any station commitment.

#23 Revise the references to "Reference Drawings 1 and 2" to include "Reference Drawing 6" in Section 12.1.4.1. Incorporating this change will also require that the additionally referenced drawing, 11715-FK-9C, be added to the reference list at the end of the Section 12.1. This is an administrative change since it deals only with the correct assignment of reference drawings. The area radiation monitors discussed in this section are shown on three drawings. These include the two drawings already referenced (11715-FK-9A and 11715-FK-9B) and a third drawing (11715-FK-9C). The third drawing, "11715-FK-9C, Instrument Piping Radiation Monitoring - Sheet 3," is a necessary part (Sheet 3 of 3) of the intended references. The proposed changes are administrative and do not impact any design basis information or change any station commitment.

#29 Revise the first sentence in Section 15.4.7.2.4.1 to indicate that the instruments listed in this section to detect a fuel handling accident are for a Unit 1 accident only. This change is intended to clarify the scope of the subsequent statements. It was not explicitly stated in the UFSAR that the evaluation provided is for either unit or that the evaluation is typical of either unit. Since the containment design, fuel design, and radiation monitoring systems are the same for both units, the fuel handling accident consequences would be the same for either unit. The evaluation being performed is addressing a fuel handling accident in the Unit 1 containment only. The proposed change clarifies this fact. The proposed change clarifies the intent of the original statements and does not impact any design basis information or change any station commitment.

Summary:

The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following 22 non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

#4 Revise Section 7.7.1.12.2 to remove the reference to manual actuation of a high radiation alarm by an operator in containment. High radiation detected in the containment area generates audible and visual alarms in both the control room and at the location of the responding monitor. Additionally, "audible" alarms in the form of verbal announcements via the PA (Gaitronics) system can be initiated by the operators in either the main control room or by the operators in containment if situations warrant such announcements. However, the implication of the existing sentence is that the operator in containment can activate the same audible alarms that the RM system activates. This capability does not exist at North Anna. It is also unclear what the intent of such a capability would be. There is no design or regulatory requirement for this capability. The NAPS OL SER (NUREG-0053) contains no discussion or reference to this design feature. The specification for the radiation monitors, NAS-234, makes no mention of this capability. The Test Loop Diagrams for the area monitors throughout the station show no indication of manual remotely activated alarm capability. No credit is taken for manually initiated "radiation alarms" in any dose assessments (personnel or offsite) for fuel handling accidents. The proposed change involves a change to the facility as described in the original FSAR. Since this change does not alter any SSC involved with the cause or mitigation of any design basis accident and does not involve any procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the change does not involve physical additions to the facility and the inferred alarm capability had no control or actuation responsibility and the change has no involvement in any procedural activities, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. Since the change involves an alarm capability that was not credited for any safety action, the margin of safety as defined in the basis for any Technical Specification is not reduced.

#5 Reword Section 9.3.2.1.3 to remove the implication that the condenser air ejector (CAE) is 1) the only alternate monitoring means, and 2) that the CAE is only used as a leakage indicator when a SG blowdown sample line is inoperative. The existing UFSAR statement consists of a true statement but it is incomplete and, therefore, not completely accurate. The CAE radiation monitor will provide backup indication of a steam generator primary-to-secondary leak, but other monitors also perform this same function. The statement mimics the original specification requirement for the CAE monitor and has not been changed to reflect the addition of new radiation monitors since the original licensing of the station. The proposed rewording reflects the addition of the new monitors that have been added which would also provide alternate indication of a steam generator primary-to-secondary leak. These added radiation monitors are the steam line N-16's, the steam line NRCs, and the high-capacity SG blowdown discharge monitors. Since the proposed changes do not involve physical changes to the facility or any procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#7 Revise Section 11.4.4.1, which discusses the gross gamma counter, to identify that this counting technology is essentially obsolete and remains only as a backup technique to the multi-channel analyzers for waste stream sample analysis. Improvements in counting technology, specifically the advancement of multi-channel analyzers (MCAs), has made the use of gross gamma counting of waste discharge sampling an obsolete practice. Waste stream sample analysis is currently performed per HP procedure HP-3010.021 and utilizes the station MCAs which provides a detailed isotopic evaluation of the waste versus a gross activity assessment only and assumed isotopic distribution. However, the capability to use gross gamma counting still exists at the station and remains as an alternative analysis method. The change clarifies the current practice to comply with the regulatory requirements for waste stream sampling which is technically much improved over the older gross gamma counting technique. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#8 Revise the text in Section 11.4 to clarify the distinction between the normal operation process and effluent radiation monitors and the post-accident radiation monitors installed pursuant to the post-TMI requirements. In most cases this involves referring to the monitors as either the normal operation monitors, the Nuclear Research Corporation High Range Effluent Monitors (NRCs), or the Kaman Normal and High Range Noble Gas Effluent Monitors (Kaman's). As needed, a brief explanation of the post-accident monitoring system evolution is provided to help distinguish between the various systems. The UFSAR changes that have occurred to incorporate information into the UFSAR about the post-accident radiation monitoring system has left the information in Section 11.4 inconsistent and confusing. Section 11.4 was further complicated by the incorporation of an interim set of monitors (the "NRCs") followed by the final set of monitors (the "Kaman's"). As a result of these previous changes, the resulting UFSAR information on post-accident monitoring systems is difficult to understand and subject to ambiguous information and interpretation. The proposed text changes are intended as a clarification only. It does, however, contain brief additional explanations regarding the roles of the various radiation monitoring systems and the regulatory requirements that warranted their installation. This additional detail is why this change in not considered editorial, however, no new technical information is added and no existing technical information is revised. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#9 Remove the specific value of sensitivity for the letdown monitors in Sections 11.4.2.1 and 11.4.2.15 and replaced it with a more generic statement confirming that the monitors have sufficient sensitivity to detect fuel failures. The original letdown monitor configuration provided by Westinghouse had two detectors that covered a range of 1E-04 to 1E+03 μCi/cc (based on Co-60). The ranges had a one decade overlap and were intended to detect fuel failures ranging from 0.1% to 1.0%. The original detectors were configured to monitor a sample taken off of the letdown line and included a piping delay to allow for N-16 decay. The original letdown monitors were replaced at NAPS via DCPs 94-013 and 94-014. They were replaced with Merlin-Gerin Model DCM-90 Digital Alarming Dosimeters (DADs). The specification to procure the new detectors for this system (NAP-0077) did not specify an isotope specific minimum sensitivity. Instead it provided the expected isotopics for fuel failure conditions of 0.1% and 1.0% and the requirement that the replacement monitors be able to detect these levels of activity as indications of fuel failure conditions. The range of the replacement detectors was specified as 4 decades. Readout was specified to be in mrem/hr instead of CPM. The intent of the letdown monitors to detect various levels of failed fuel has not changed, although the performance characteristics of the detectors are significantly different from the original Westinghouse detectors. The proposed change identifies the intended function of the monitors (indication of fuel failures) but not the detector specifics. Instead, it is stated that the letdown monitors have sufficient sensitivity to perform their intended function of detecting fuel failures as low as 0.1%. Section 11.4.2 of the UFSAR was updated via FN 95-018 in Revision 31 as part of the previously identified DCPs and was supported by Safety Evaluation Nos. 95-SE-MOD-064 (Unit 1) and 95-SE-MOD-018 (Unit 2). The changes proposed here should have been included in FN 95-018. The changes proposed here are due to the implementation of these DCPs and are supported by the Safety Evaluations for the DCPs and the previous UFSAR change package. Accordingly, this item will not be considered further in this safety evaluation.

#10 Revise various portions of Section 11.4.2.1 to incorporate information regarding the previous addition of the high-capacity steam generator blowdown discharge monitors. These revisions include the facts that the high-capacity SG blowdown discharge monitors are a) being measured in units of μCi /cc, not CPM, b) do not readout in the main control room, c) do not use stripchart recorders, d) do not have a check source, and e) do not adjust alarm setpoints, voltage, power, and other variables from the main control room. DCPs 94-003 and 94-015 for Units 1 and 2, respectively, modified the discharge from the SG blowdown flash tank drains. The high-capacity SG blowdown discharge radiation monitors, 1-SS-RM-125 and 2-SS-RM-225, were added with these change packages. The monitors do not perform a safety function, but do isolate the discharge from the blowdown flash tanks if the hi-hi activity trip setpoint is reached. Appropriately, these monitors were added to Table 11.4-1 in the UFSAR via Change Package FN 95-009 in Revision 34 to the UFSAR. FN 95-009 was supported by Safety Evaluation No. 95-SE-MOD-044. The changes listed above are items that were not included in FN 95-009, but are necessary for completeness.

Each item listed above was identified in the DCPs. The units of the new radiation detector outputs were identified in the DCPs as being different from the specification criteria of the original radiation monitors (NAS-234). The output of the new monitors were in μCi /cc instead of CPM. The readout from these new monitors is local to the detector. Operations is notified of a problem by a common alarm in the control room and HP is dispatched to determine the cause. The computer based controller for the new high-capacity SG blowdown discharge system stores data and makes trend data available for the overall system including the new radiation monitors. Therefore, there is no data permanently recorded on a stripchart. These monitors are exposed to external check sources on a quarterly basis per station procedures 1/2-ICP-SS-RM-125/225, but do not have check sources installed per their design. The adjustment of alarm setpoints, voltage, power, and other variables for the new high-capacity SG blowdown discharge radiation monitors are made from the controller workstation which is local to the detector and not in the main control room.

Additionally, revise Section 11.4.2.14 by splitting the text to clearly distinguish between the SG blowdown sample line monitors (originally installed) and the newer high-capacity SG blowdown discharge monitors. Text describing the new high-capacity SG blowdown discharge radiation monitors was added to Section 11.4.2.14 (which is the section for the original SG blowdown sample line monitors) as part of FN 95-009. This addition introduced a dual description of the SG blowdown monitors under one heading which presents the potential for inaccurate interpretation of the design description. Therefore, for reasons of clarity, the proposed changes place the high-capacity SG blowdown discharge system into its own subsection under blowdown monitors. The original SG blowdown sample line monitors also have their own subsection. This aspect of the proposed change is purely editorial. However, some of the text added in FN 95-009 to describe the sampling methods of the new system was evaluated and determined to be inappropriately detailed. For example, the text contained identification of procedural details, such as, pump drain lines and sample flowrate settings. This level of detail is excessive and inconsistent with existing descriptions for the other process and effluent monitors in Section 11.4.2 and is in excess of the level of detail required by the guidance of the Standard Format and Content of Safety Analysis Reports for Nuclear Power Stations used for the NAPS FSAR. These inappropriate portions of the text will be removed by the proposed change.

The proposed changes are supported by the previous Safety Evaluation (95-SE-MOD-044) for UFSAR Change Package FN 95-009. Accordingly, this item will not be considered further in this safety evaluation.

#11 Revise Section 11.4.2.1 to remove the exception regarding the power supply for the recirculation spray cooler service water outlet monitors since they are powered from an emergency bus. The recirculation spray cooler service water outlet radiation monitors are used only after a loss-of-coolant accident to detect leakage into the SW system from the containment recirculation spray system. The specification for NAPS radiation monitors, NAS-234, requires that these radiation monitors be fed from the emergency buses. The station electrical drawings (11715-FE-1Q and 12050-FE-1Z) confirm that these radiation monitors are, in fact, fed from the emergency buses. The original FSAR does not agree with the current station configuration. The exception that the recirculation spray cooler radiation monitors were not powered from an emergency bus represents a condition that is less conservative than the current configuration. The current station configuration supports the performance of the monitors intended function during post-LOCA conditions by means of a more reliable power supply. The proposed change involves a change to the facility as described in the original FSAR. Since this change does not alter any SSC involved with the cause or mitigation of any design basis accident and does not involve any procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the change does not involve any physical additions to the facility and the radiation monitors involved have no control or actuation responsibility and the change has no involvement in any procedural activities, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. Since the change involves a radiation monitor that was not credited for any safety function, active or passive, the margin of safety as defined in the basis for any Technical Specification is not reduced.

#12 Revise Section 11.4.2.13 to indicate that the Condenser Air Ejectors (CAE) flow will be diverted to containment on a high-activity alarm only if the containment has not been isolated by a Phase A isolation signal. The proposed change correctly states the restriction that exist for the control action of the CAE radiation monitors as shown in the Air Ejector Logic Diagrams (11715/12050-LSK-3-1A/1B). Section 7.3.1.3.5.1 of the UFSAR already states that the Air Ejectors are one of the process systems that would be overridden by a Phase A or B containment isolation valve trip signal. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#13 Revise Section 11.4.3.1.2 to include both particulate and gaseous releases in the sentence discussing Technical Specifications. Also, specify that only the particulate monitor that contains moving filter paper. These changes are intended to clarify the information regarding the gaseous and particulate monitors in Section 11.4.2. Section 11.4.2 of the UFSAR discusses the normal operation process and effluent radiation monitoring systems. These include both particulate and gas monitors for the process vent and ventilation vent. Because both types of monitors provide input to the control room and are required by Technical Specifications, the UFSAR statement should refer to both types of releases. Also, because the gaseous monitors do not contain moving paper, the statement discussing the filter paper should specify "The particulate monitors" only.

Revise Section 12.2.4 to correct the discussion that for the multi-port sampler, the particulates are collected on a moving filter tape. The revision will change the time to reach equilibrium from 2 hours to a value of 5 hours to be consistent with the Vendor Technical Manual for the monitors. The existing UFSAR statement refers to reaching equilibrium of the airborne activity in a collection time of 2 hours. This is a significant difference in the system description. The moving filter paper has a normal operating speed of 1"/hr. The distance from the initial edge of the collection area to the trailing edge of the detector was visually estimated as between 4" and 5". The filter must travel this distance in order to be in "equilibrium," that is, for the detector to see only particulate matter from the sampled area following a change in sample location or a change in monitored area concentration. The programmable capabilities of the multi-port sampler are such that various modes of sampling are available. The filter can be advanced to a "clean" spot on the filter, stopped at that spot for a fixed time segment, and then advanced to the detector for counting. This allows for quick or specific sampling and/or monitoring of a selected station area. The slower (5 hour equilibrium) normal operations mode is more suited for normal, steady-state operations. Any significant increase in particulate activity would be "seen" by the detector much sooner than 5 hours which would alert the control room and Health Physics to changing condition in the station. Portable airborne monitors could then be used to assist in the monitoring of such a situation as described in Section 12.2.4 of the UFSAR.

Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#14 Section 11.4.3.2 will be revised to change the range of the high-range effluent radiation monitors is to be consistent with the Technical Specification values that were based on the actual ranges from the Vendor Technical Manual for the detectors. The current UFSAR values for the range of these radiation monitors are from DCP 79-066, which stated the minimum requirements of NUREG-0578 for effluent monitors on potential post-accident steam release pathways. The actual equipment installed (Nuclear Research Corporation, Model TA600) has the same upper range limit listed in the DCP but has a full decade more range on the lower end. The increased lower end range corresponds to an increased detector sensitivity and an improved lower limit of detectability. The NAPS Technical Specifications (Table 3.3-6) is written to support the detector's actual 9-decade range and was approved by Amendments 64 (Unit 1) and 49 (Unit 2). Since this change makes the UFSAR and the Technical Specifications the same and the Technical Specifications are part of the Operating License for the station, this item will not be considered further in this Safety Evaluation.

#16 Revise Section 11.4.4.1 to state the concentration of mixed fission and activation products in the high-level waste drain tanks may approach 0.15 µCi/ml. The proposed change is based on operational experience as documented in the JGC Report "Input Basis of Radioactive Nuclide Composition for Each Radioactive Waste." The report states that the Virginia Power Liquid Radwaste Characterization Program, Data Reduction Summary, Batch 1 - 20 (9/85 to 11/86) determined that for Virginia Power's facilities, the Liquid Waste (High and Low Level combined) activity could approach 1.4 E-1 µCi/ml. The recommended revision sets this value at 0.15 µCi/ml. This value does not represent a limitation to plant operation or any radiological concerns. It is a waste stream characterization only and does not represent a licensing basis parameter. The proposed change more accurately identifies the potential activity levels of the subject tank contents. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#17 Revise Section 11.4.4.1 to 1) replace the words "a sampling sink" with "the Clarifier Effluent Proportional Tank;" 2) replace the specific quantity and frequency of samples taken for analysis with a more programmatically correct statement, and 3) replace "sink" with "tank" where appropriate. Procedure HP-3010.021 specifies the sample location for the clarifier effluent as the Clarifier Effluent Proportional Tank and states the sampling requirements. EWR 88-157F revised the station configuration for Liquid Waste (LW) sampling by removing the LW sample pumps and replacing them with a manually set metering valve. At that time, the sample "vessel" was a 50 gallon tank/drum. The UFSAR referred to this vessel as a "sample sink." The UFSAR was updated to reflect this new sampling configuration (FN 91-47, Safety Evaluation No. 90-SE-MOD-019), but the use of "sample sink" to describe the sample vessel was retained. Later, DCP 91-127-3 installed the Clarifier Effluent Proportional Tank (1-LW-TK-20) which replaced the 50 gallon tank with a 1000-liter tank. Following the tank upgrade, no revisions to the UFSAR were made since the tank size was not explicitly mentioned. Using the proper name for the Clarifier Effluent Proportional Tank is an editorial correction to avoid confusion with a non-existent sample sink. Attachment 5 of the sampling controlling procedure, HP-3010.021, states that two 1 gallon samples are taken at the Clarifier Effluent Proportional Tank. One is for analysis and one is saved as a backup prior to draining the tank. This procedure does not specify a daily sample requirement. Regulatory Guide (RG) 1.21 does not specify daily sampling requirements for this tank but instead requires that representative samples of effluent releases be analyzed. With the original volume of this tank (50-gallons), the collected representative effluent sample needed to be drained essentially daily. Therefore, daily sampling and analysis was performed to correspond with the daily need for draining the tank. The larger tank now installed can go for several days without draining. Therefore, sampling is less frequent since draining is less frequent. The changes proposed would not alter North Anna's commitment to RG 1.21 or the method of compliance with the requirements of RG 1.21. The existing procedure controlling this sampling is unchanged. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#18 Revise the upper range of the effluent discharge rate flow in Section 11.4.4.1 from "250 gpm" to "300 gpm." Operations and Health Physics procedures allow a liquid waste (LW) effluent discharge rate of between 125 gpm and 300 gpm. The LW discharge pumps are sized at 300 gpm each with only one routinely running. Supplement S11.8 to the FSAR stated the upper discharge flow limit as 500 gpm, therefore, the release rates are within the licensing bases documentation. EWR 88-157F revised the station configuration for LW sampling by removing the LW sample pumps and replacing it with a manually set metering valve. This change was supported by Safety Evaluation No. 90-SE-MOD-019. This EWR, states that "For flow rates greater than 250 gpm the 1-LW-1130 valve will have to be repositioned." To ensure the 1:7826 sample ratio for the 300 gpm release rate is maintained, the sampler must be set at a 145 ml/minute proportional sample rate. Attachment 5 of the sampling controlling procedure, HP-3010.021, requires that the proportional sampler be set at a minimum of 0.5 ml/gal sample rate. This minimum is calculated and confirmed each time the clarifier effluent proportional tank contents are sampled. This corresponds to a 150 ml/minute which exceeds the proportional sample minimum ratio requirement of 145 ml/min. This change in effluent discharge rate upper value does not impact any regulatory release limitations or pose any radiological concerns. It complies with the sampling requirements of Regulatory Guide 1.21 and is within the current licensing basis for LW discharge flow. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#20 Revise Section 11.4.4.2 to specify that a tritium determination is performed prior to either a containment purge or a waste gas decay tank release regardless of the concentration of other gases as currently stated. This change reflects the current practice by NAPS, which is a more conservative approach to release monitoring than currently stated in the UFSAR. The station gaseous waste sampling procedure, HP-3010.031, does not rely on an initiating threshold of 1 Ci for "other gases." Tritium sampling is performed for all containment purges and waste gas decay tank releases. The change accurately reflects the conservative tritium surveillance testing performed at North Anna. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#21 Revise Table 11.4-1 as follows: 1) change title and add a footnote to reflect the fact that the information in this table is the information from the specification documents for these monitors and that the actual characteristics of the monitors meet or exceed the listed values, 2) revise the values as necessary to correspond to the specification values, 3) add the specific mark numbers for the listed monitors, 4) re-letter footnote "c" to "b," 5) change Ke-133 to Xe-133 for the process vent gas monitor, and 6) remove the footnotes that make references to additional high range post-accident monitors. The changes to this table will help to clearly distinguish between the normal operation process and effluent radiation monitors and the post-accident monitors at NAPS. The table title and the title footnote are for this purpose. The mark no. is being added for each of the normal operation monitors listed in Table 11.4-1 in order to help distinguish between these monitors and some of the post-accident monitors that are monitoring the same release pathways and are discussed in different sections of the UFSAR. Additionally, the 2 footnote references to the post-accident monitors in this table will not be necessary since new tables will be added that will specifically identify the post-accident monitors. The footnote regarding local readouts is re-lettered to "b." Also, the relevant isotopes for the process vent gas monitor are Xe-133 and Kr-85 not Ke-133 and Kr-85. These are purely editorial changes.

The non-editorial aspect of these proposed changes deals with the revision of some of the detector sensitivities listed in the table. The original FSAR Table 11.4-1 provided the detector characteristics values for the process and effluent radiation monitors as given in their specification. NAS-234 was the specification for all of the original NAPS radiation monitors (except for the Vent Vent "B" particulate and gas monitors). Subsequent changes to this table have not always maintained the original basis for listed sensitivities. Various changes to Table 11.4-1 have replaced the original value of the monitor's sensitivity with values given in the Technical Manuals for the individual monitors. This is different from the original approach of listing the minimum sensitivity value provided in the equipment specification. The specifications involved in the entries of Table 11.4-1 are NAS-438 (Vent Vent "B"), NAS-2026 (SW to Reservoir), NAP-0077 (RCS Letdown), NAP-0081 (High-capacity SG BD), and NAS-234 (all others). The sensitivity for the new letdown monitor is not directly stated in NAP-0077, however, sufficient information was available to derive the sensitivity required to meet the requirements for failed fuel detection per the specification. The changes are consistent with the original FSAR Table 11.4-1 contents.

Additionally, two new tables (Tables 11.4-3 and 11.4-4) are added which identify the NRC and Kaman post-accident radiation monitor systems. These systems were installed via DCPs 79-066, 80-037A, and 80-037C. The table identifies the release pathways being monitored and the monitor mark numbers. All technical information regarding these monitors is already contained within the text of the existing UFSAR. They are being added as a clarification in order to properly distinguish between post-accident and normal operating radiation monitors. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#22 Revise the count rate data in Table 11.4-2 to be consistent with the values in the vendor technical manuals for the various detectors and reformat the values to be consistent with station procedures. Also, add the high-capacity SG blowdown discharge monitors and their counting rates for relevant isotopes to Table 11.4-2. The changes are necessary to provide technical accuracy between the UFSAR and the plant installed equipment. The count rate data in Table 11.4-2 should reflect information given by the manufacturer in response to specification requirements for each of the detectors listed. The count rate is a factor used in the determination of setpoints since it correlates detector responses to standardized units of activity concentration. The present values for all the Westinghouse supplied detectors are as they were in the original FSAR. It appears that the FSAR (or UFSAR) has never been revised to include the actual count rate data that were provided in the Westinghouse Vendor Technical Manual (VTM). This is not considered a problem since the information in this table was not specifically required by the NAPS FSAR guide, "Standard Format and Content For Safety Analysis Reports For Nuclear Power Plants," nor specifically requested to be in the FSAR by the NRC via supplemental questions. Subsequent change-outs of some of the station radiation detectors with other than Westinghouse original equipment have generated revisions to this table. HP procedure HP-3010.040 determines the setpoints for process and effluent release radiation monitors. Not all monitors in Table 11.4-1 are considered in HP-3010.040. However, those monitors that are covered in the procedure get their count rate data directly from the VTMs which is different from Table 11.4-2. Therefore, this proposed change will ensure consistency between the UFSAR and the setpoint calculations associated with the station process and effluent monitors. As an editorial item, the format of the values given in this table is also revised to be in standard scientific notation, which is consistent with the station procedures that use these values.

DCPs 94-003 and 94-015 added the high-capacity SG blowdown discharge monitors. UFSAR Change Package FN 95-009 implemented changes in the UFSAR text which included the addition of these new monitors to Table 11.4-1 in Revision 34 to the UFSAR. Table 11.4-2 contains the counting rates for relevant isotopes for the monitors in Table 11.4-1, except the letdown monitors as stated in the UFSAR text. Table 11.4-2 was not updated to include the data for the high-capacity SG blowdown discharge monitors when the UFSAR was revised for this new system. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#24 Revise Section 12.1.4.1 to acknowledge the fact that special restrictions are imposed by Technical Specifications on plant operators or maintenance activities associated with the area radiation monitors for new fuel storage and fuel pool bridge crane. The change accurately reflects the plant licensing basis for inoperable area radiation monitors addressed in Technical Specifications, Section 3.3.3.1. Procedure 0-OP-62.1 places the area radiation monitors in service and specifies any restrictions imposed per the Technical Specifications. Section 3.3.3.1 of the Technical Specifications requires the fuel pool bridge crane monitors to be operable with its alarm/trip setpoint within the specified limits. Procedure 0-OP-62.1 specifies the same requirements as the Technical Specifications and also includes the new fuel storage area monitor. Therefore, there are some restrictions imposed on the operators if certain area monitors are inoperable. The changes correct the UFSAR such that it is consistent with the station licensing basis as stated in the Technical Specifications. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#25 Revise Section 12.1.4.2 to accurately reflect the separation of the Containment High Range Radiation Monitors (CHRRMs) for Unit 1 and Unit 2. The proposed change provides a more technically accuracy description of the CHRRMS system detector locations. The NAPS response to NUREG-0737, Item II.F.1, Attachment 3 supplied Vendor Drawings Nos. 13075.56-MC-10-1 and 13075.56-MC-7-1 for Units 1 and 2, respectively. The Unit 1 drawing shows the CHRRMS to be approximately 155 degrees apart and the Unit 2 drawing shows about 130 degrees apart. This complies with the NUREG-0737 requirement for separation and allows each detector to "view a large segment" of the containment area. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#26 Revise Table 12.1-4 to add the Local Emergency Operations Facility (LEOF) to the listing of Area Radiation Monitors. The ranges of all detectors in Table 12.1-4 will be revised to be 10E-1 to 10E+4 mrem/hr. The LEOF Area Monitors are part of the station radiation monitoring system. The LEOF radiation monitors were installed via EWR-89-102. No safety evaluation or activity screening was provided for this EWR. They are located outside the protected area, but have station mark numbers and are controlled and used by station procedures. The LEOF monitors are identical to the Technical Support Center (TSC) monitors, which are already listed in Table 12.1-4, in type (Eberline EC4-X), number (2), and range (10E-1 to 10E+4 mrem/hr).

The line item for "Spare" monitors in the list will be deleted and the mark number for each area monitor listed will be added. These two changes are purely editorial enhancements.

Test Loop Diagrams identify all other monitors (except the TSC and LEOF) as Westinghouse Model 1101 monitors. Per the Westinghouse Vendor Technical Manual, the Model 1101 monitors have a range of 10E-1 to 10E+4 mrem/hr. Therefore, the range of all detectors in Table 12.1-4 is 10E-1 to 10E+4 mrem/hr. In all cases of proposed range changes, the new ranges are larger by one decade. This reflects each monitor's actual range versus their specification range which was originally provided in Table 12.1-4 for the Westinghouse area monitors. With this revision, all monitor ranges are given on the same basis. The proposed change involves a change to the facility as described in the original FSAR. Since this change does not alter any SSC involved with the cause or mitigation of any design basis accident and does not involve any procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The change involves the additions of the LEOF radiation monitor to the facility but these monitors have no control or actuation responsibility and the change has no involvement in any procedural activities. Therefore, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. Since the change involves a radiation monitor that was not credited for any safety function, active or passive, the margin of safety as defined in the basis for any Technical Specification is not reduced.

#27 Revise Section 12.2.4 to reflect the fact that, although the ventilation vent multi-port sampler system has eight monitoring channels, only seven channels are used for monitoring ventilation paths. The eighth channel is a spare channel, and is not used to monitor the "waste gas decay tank vaults" as currently stated in the UFSAR. Per the original radiation monitor specification, NAS-234, the ventilation vent multi-port sample system 1-VG-RM-105/106 was designed with eight channels. Channel No. 8 of the system was designated the sample point in the waste gas decay tank vaults. This information was not originally reflected in the FSAR but was incorporated in the FSAR Supplement via comments S11.5, S12.2.4, S12.11, and S12.23 in the mid-70s. The purpose of the information in response to S11.5 was to demonstrate the ability to monitor tank leakage. The ability to monitor potential WGDT leakage also exist via pressure gauges in the tank, which are monitored in the control room, and via use of portable air samplers. Additionally, the WGDT is designed as a double walled tank to prevent leakage. The other comments from Section 12 involved the description of the airborne radiation monitoring system.

Channel No. 8 of 1-VG-RM-105/106 was designated a spare channel prior to Unit 1 startup. The ventilation vent particulate and gaseous multi-port sample monitor is used on ventilated areas. The WGDT vault area itself is not a separately ventilated area. The vault is located adjacent to the tunnel which connects the decontamination and fuel buildings. The vault area is open to the tunnel but is ventilation ducted to the fuel building ventilation system. The fuel building is monitored by 1-VG-RM-105/106, Channel No. 1 on an intermittent basis, but is continually monitored via the Ventilation Vent B particulate and gas monitors (1-VG-RM-112/113). Therefore, it was not necessary to specifically monitor the WGDTs with Channel No. 8 of 1-VG-RM-105/106. Documentation exists in the Westinghouse Vendor Technical Manual (Amendment 14) that the No. 8 channel was made a "spare" channel in August '77. The decision to make this change occurred sometime between late '73 and '77 but no specific documented basis for the change has been found. However, since leakage detection in the WGDT is available through airborne radiation monitors (1-VG-RM-112/113 and 1-VG-RM-105/106, Channel No. 1), pressure monitoring, and via portable air sampling, the intent of the FSAR information is not changed.

The proposed change involves a change to the facility as described in the original FSAR. Since this change does not alter any SSC involved with the cause or mitigation of any design basis accident and does not involve any procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The change involves an alternate method of radiation monitoring to the WGDT vaults in the facility. The radiation monitors not used as a result of this change had no control or actuation responsibility. The change has no involvement in any procedural activities. Therefore, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. Since the change involves a radiation monitor that was not credited for any safety function, active or passive, the margin of safety as defined in the basis for any Technical Specification is not reduced.

#28 Revise the sentence in Section 12.2.4 which discusses the single-channel analyzer. The referenced single-channel analyzer has been replaced by the normal station complement of multi-channel analyzers (MCAs). The intent of a dedicated single-channel analyzer was to provide for timely analysis of air samples for post-accident monitoring. An increase in the quantity of MCAs has resulted in redundant capability to perform such analysis. In addition to 3 MCAs in the shielded countroom, a 4th MCA is available in the training facility. Since the existing MCAs provide assurance that air samples may be analyzed in a timely manner following an accident, the dedicated single-channel analyzer is no longer used or required and the reference should be revised to refer to available MCAs. Therefore, the requirement and capability to perform post accident gamma spectroscopy of air samples is unchanged. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

#30 Revise Section 14.4.7.2.4.2 to correctly identify appropriate reference drawings and to clarify the containment particulate and gaseous radiation monitor suction location. The necessary changes are as follows: 1) Change the references for the containment particulate and gaseous radiation monitors to reference drawings (3) and (6): 2) Change the suction location of the RMS-RM-159 and RMS-RM-160, which mechanically are a single unit, to the recirculation air cooler distribution duct to "A" loop room located at approximate Elevation 233 ft. 8 in. as shown on reference drawing (3) and (6); 3) State, for clarity, that the recirculation air cooler suction is located at the lowest level of the containment at approximately elevation 224 ft. 9 in.; and 4) Change the references for the duct size for the containment purge and exhaust and the containment air supply systems to reference drawings (2) through (6).

The changes to reference drawings are administrative and simply refer to the appropriate drawings. The current UFSAR implies that the containment particulate and gaseous monitors draws suction from the recirculation air cooler discharge at elevation 224 ft. 2 in. This is the elevation of the recirculation air cooler suction and fan. The actual suction location for the containment particulate and gaseous radiation monitors is on the distribution duct to "A" loop room which is located at approximate elevation 233 ft. 8 in. as shown on reference drawing (3) and (6). Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the changes do not involve physical changes to the facility or procedural changes, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report to be created. The margin of safety as defined in the basis for any Technical Specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined to not represent an unreviewed safety question.

99-SE-OT-06

Description

North Anna UFSAR Change Request No. FN 98-057

UFSAR Change Request No. FN 98-057 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss North Anna's Recirculation Spray System. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's Recirculation Spray system.

Summary

The following editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any RS system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub #1

Identify the following as Historical: Section 6.2.2.4.2 that discusses pre-operational testing of the Recirculation Spray System. Change verb tense to the past tense, as necessary. Also, in Section 6.2.2.4.2 relocate the discussion of the portable dike support brackets, so that the statement is not in the historical block. The introduction to Section 6.2.2.4.2 discusses pre-operational testing of the Recirculation Spray system. This statement is historical in nature and is not intended or expected to be updated for the life of the plant. Relocating the statement about the portable dike support brackets does not change the intent of the historical discussion of RS system pre-operational testing.

Change Item Sub #3

Change the verb tense from present to past in the discussion of pre-operational testing in Section 3.1.36.2, "Testing of Containment Heat Removal System, Criterion 40." The original intent of this statement was to discuss pre-operational testing of the containment depressurization system. Since pre-operational testing was performed prior to the 1980s, the statements discussing this testing should be in the past tense. This is an editorial change that does not alter the intent of the original statement or change a previous commitment and is, therefore, acceptable.

Change Item Sub #6

Add words in Section 3A.1.2 to clarify that the recirculation sprays are required only if an increase in containment pressure to the CDA setpoint occurs, rather than when there is any increase in containment pressure, as currently stated. Section 3A.1 of the UFSAR, "Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal System Pumps (Safety Guide No. 1)," discusses the operation of the Recirculation Spray (RS) System and when it is required to operate. Currently, the description states that the recirculation sprays are only required if an increase in containment pressure occurs. This statement is unclear because it insinuates that "any" increase in containment pressure would result in operation of the recirculation sprays. However, the RS pumps are automatically started only from an increase in containment pressure that reaches the 27.75 psia setpoint, causing a CDA signal to occur. The proposed additional words provide clarification to improve readability and remove potential ambiguity. They do not change the intent of the original statement, impact any design basis information, or change a commitment.

Change Item Sub #8

Clarify the statements discussing the automatic operation of the casing cooling subsystem upon receipt of a CDA signal, low casing cooling tank level, and low casing cooling pump discharge flow. Also, clarify that the two redundant channels of instrumentation are for temperature and level. The original intent of these statements was to describe the automatic operating sequence of the casing cooling subsystem and the instrumentation provided. As currently written, the existing statements can be misleading if the reader does not already know how the system is normally aligned and operated. Specifically, there is only one normally open discharge valve and one normally closed discharge valve for each pump, not two as could be interpreted from the existing text. Upon receipt of a CDA signal, each pump's normally closed discharge valve receives an open signal and each pump's normally open discharge valve receives an "assure" open signal. The proposed change clarifies this. The statement discussing the redundant channels of instrumentation will be revised to specifically state that the redundant instrumentation is for temperature and level. The statements about automatic closing of one discharge valve due to a low tank level will be revised to indicate that the redundant channels of casing cooling tank level instrumentation each close its respective train's related pump discharge valve, not just "one discharge valve," as currently stated. The current statement, "low casing cooling pump discharge flow, concurrent with a CDA signal, automatically closes the other discharge valve," will be revised to indicate that the "other discharge valve" being automatically closed is the valve associated with the pump that has the low discharge pressure condition. Within the statements being revised, there is a reference to a UFSAR figure and a reference drawing depicting the casing cooling subsystem. The proposed wording changes are consistent with the referenced figure and reference drawing. This clarification does not change the intent of the original statement, impact any design basis information, or change a commitment and is, therefore, acceptable.

Change Item Sub #10
Clarify the discussion on how each casing cooling pump and its associated normally-closed discharge valve meet the single failure criterion. As currently written, the existing statement could be interpreted to infer that each casing cooling pump and its associated valve are powered from separate safety-related buses, not necessarily the same safety-related bus. The existing statement will be clarified by discussing the power supply for each casing cooling pump and stating that its associated normally-closed discharge MOV shares the same power supply. This change will remove any ambiguity without changing the original intent of the statement.

Change Item Sub #16
Change the statement discussing the piping fabrication, installation and testing code compliance requirements for the Containment Heat Removal Systems to include the addenda requirements that are stated in the original piping specification, NAS-290, "Piping Section I Piping Engineering and Design Instructions". The original intent of this statement was to describe the code compliance requirements for the different quality groups, Q1, Q2, and Q3. Specification NAS-290, Rev. 6, "Specification for Piping Section 1 Piping Engineering and Design Instructions," dated January 30, 1980, is the design specification for the NAPS piping. On page 1-10 of NAS-290, the specification indicates that all Q1, Q2, and Q3 piping shall be in accordance with B31.7 (a). Page 1-12 of the specification indicates that the "(a)" refers to "ANSI B31.7-1969 and Addenda through 1970 - Nuclear Piping Code (ANSI B31.7)". Changing the statement to accurately reflect the original piping specification is acceptable because it does not change the original intent of the statement; it only makes the statement accurate and complete.

Change Item Sub #22
Reword the statement in Section 6.2.3.3 that discusses the water available in the containment sump to clarify that the water in the containment sump is available to the recirculation spray and low head safety injection pumps, not the "containment spray system" as currently stated. The statement being rewritten currently states that the entire amount of water available to the Containment Spray System from the containment sump is used. This statement is confusing because the term "containment spray system" is undefined. The original intent of this statement was to indicate that the entire contents in the containment sump following a LOCA are used by the four recirculation spray pumps and, after commencement of the recirculation mode of safety injection, the two LHSI pumps. This is discussed in detail in Section 6.2.2.2. Rewording this statement clarifies that the four recirculation spray pumps and, after commencement of the recirculation mode of safety injection, the two LHSI pumps take suction from the containment sump. The proposed clarification is consistent with Section 6.2.2.2 and does not change the intent of the original statement, impact any design basis information, or change a commitment.

Change Item Sub #24
Revise Figure 6.2-50, "Recirculation Spray Subsystem," to show that the inside recirculation spray pumps supply the upper RS spray headers and the outside recirculation spray pumps supply the lower RS spray headers. Also, add the inside containment isolation (check) valves to the figure. The purpose of this figure is to provide a simplified drawing of the Recirculation Spray System. Currently, the figure does not show the inside containment isolation valves and also indicates that the IRS pumps supply the lower of the two

RS spray headers and the ORS pumps supply the upper RS header. Section 6.2.2.2 states, "Each RS subsystem, shown on Figure 6.2-50 and Reference Drawing 1, consists of a recirculation spray pump, a recirculation spray cooler, and a 180-degree spray ring header located approximately 85 feet above the operating floor of the containment structure." Reference drawing 1, 11715-FM-091A, "Flow/Valve Operating Numbers Diagram Cont. Quench & Recirc. Spray Sub. Sys. Unit 1," shows the inside containment isolation check valves and indicates that the IRS pumps supply the upper RS spray headers and the ORS pumps supply the lower RS spray headers. Figure 6.2-50 will be revised to indicate the check valves and the pump/header arrangement stated above. This change is acceptable because it does not alter the intent of the original figure or affect the ability of the recirculation spray system to perform its intended design functions.

Summary:
The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, or a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regards to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub #2
Add a footnote to Table 1.3-2, "Comparison of Engineered Safety Features," to clarify that the overall heat transfer coefficient (UA) values for North Anna and Surry in the table are as originally presented to the NRC for a relative comparison, but are not the exact UA values obtained when using data from the original NAPS and SPS recirculation cooler heat exchanger data sheets. The original intent of this table was to present a summary of the design and operational data on the engineered safety features for North Anna Units 1 and 2 together with comparable data derived from the FSARs for Surry Units 1 and 2 and Beaver Valley Unit 1. This comparison was made because the Surry and Beaver Valley units are closely related technically to the North Anna units and serve as examples of Stone & Webster facilities that received

operating licenses before the North Anna units. The specifications for the North Anna heat exchangers and the original Surry heat exchangers are provided in Specification NAS-160, Rev. 2, "Specification for Recirculation Spray Coolers for North Anna Power Station," dated December 29, 1970, and Specification NUS-85, "Specification for Recirculation Spray Coolers for Surry Power Station" dated November 12, 1968, respectively. The overall heat transfer coefficients (UA) given in the table for North Anna and Surry do not agree with the UA values calculated using data from the original recirculation cooler heat exchanger data sheets furnished by the supplier in the specifications.

When the North Anna UA value in the footnote is used to calculate the design duty for the North Anna heat exchangers, the value indicated in UFSAR table 6.2-41, "Containment Depressurization System Design Data," of 56,835,000 Btu/hr is obtained. This value is not obtained when using the North Anna UA value currently listed in the comparison Table, 1.3-2. The same is true for Surry: if the Surry UA value in the footnote is used to calculate the design duty for the original Surry heat exchangers, the value of 55,534,520 Btu/hr indicated in FSAR Table 6.3.1-1, "Containment Depressurization System Design Data," is obtained.

The proposed footnote identifies a deviation between current design and operation and the description of these as presented in the UFSAR. The revision does not remove the discussion of the design data comparison, but presents the actual UA values calculated using data from the original NAPS and SPS recirculation cooler heat exchanger data sheets and accurately represents the installed equipment. The actual UA values furnished by the vendor, rather than the historical UA values listed in Table 1.3-2, are used in current design basis calculations. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the proposed changes do not alter the operation or performance of any RS system component or any other SSC'c important to safety, there is no possibility for an accident or malfunction of a different type that any evaluated previously in the safety analysis report being created. No analyses are affected by this change, subsequently the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #4

Add a footnote to the Recirculation Spray and Quench Spray Systems section of Table 3.9-1, "Types of Pumps and Valves - Stone & Webster Scope" to indicate that MOV-RS-156A and B are not identical to MOV-RS-256A and B, although they have identical service requirements. Table 3-9.1 lists Stone & Webster supplied pumps and valves whose operability is relied upon to perform a safety function, such as a safe shutdown of the reactor or mitigation of the consequences of an accident, but are not part of the reactor coolant pressure boundary. The existing parenthetical phrase in the Recirculation Spray and Quench Spray Systems section of Table 3.9-1 states, "Unit 1 Valves Listed, Unit 2 Valves Identical." This is true for the listed valves except MOV-RS-256A/B and MOV-RS-156A/B. The proposed footnote removes potential ambiguity and does not alter the intent of the original table. This change does not affect the operability of the MOVs or alter the performance characteristics of the recirculation spray and therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the design of the MOVs exceeds the system service requirements, there is no possibility for an accident or malfunction of a different type that any evaluated previously in the safety analysis report being created. The margin of safety as defined in the basis for any technical specification is not reduced because no analyses are affected by this change.

Change Item Sub #5

Change the description of the assumptions used in the calculation that determined the radiation doses for equipment located inside the containment. Calculation 12050-RP-106, Rev. 0, dated March 6, 1980, "LOCA Doses in the Containment for Equipment Qualification," is the calculation of record used for determining equipment qualification. This calculation assumes an instantaneous release of 100% of the noble gas and 50% of the halogen inventory to the containment atmosphere, not a release of 50% of the core halogen inventory and 1% of the core fission product inventory as currently stated in the UFSAR. Calculation 12050-RP-106 superceded calculation 12050-RP-081, Rev. 0, dated October 11, 1979, "LOCA Doses in the Containment and Outside the Personnel Hatch Door, " which assumed 50% of the core halogen inventory and 1% of the core fission product inventory is released to the containment atmosphere. When Calculation 12050-RP-106 replaced Calculation 12050-RP-081 as the calculation of record for determining equipment qualification, the UFSAR was not updated to reflect the new assumptions. The proposed change updates the UFSAR to reflect the assumptions currently stated in the calculation of record and resolves a deviation between current operating practice and the description of the practice as presented in the UFSAR. The Environmental Zone Descriptions for areas inside containment use the results of Calculation 12050-RP-106, Rev. 0 and are subsequently used for determining equipment qualification. This change does not alter the Environmental Zone Descriptions for areas inside containment or alter any components on the Equipment Qualification Master List. Therefore, this change does not modify the intent of describing the assumptions used in determining the design radiation dose expected during a design-basis accident. There is no impact on the performance of the safety-related and/or non-safety-related equipment in harsh environments following an accident since the current approved EQ program is unchanged as a result of the proposed changes. Therefore, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #7
Change the rated capacity of the ORS pumps from 3,640 gpm to 3,700 gpm in Section 6.2.2.2 and Table 6.2-41, "Containment Depressurization System Design Data." Also, change the rated head of the ORS pumps from 286 ft. to 286.7 ft. in Table 6.2-41.

The original intent of both the general description paragraph and the design data table was to indicate the 'rated' flow and head values for the ORS pumps. The current flow value of 3,640 gpm, not the 'rated flow' value of 3,700 gpm given in Specification NAS-44, Rev. 4, "Specification for Recirculation Pumps for North Anna Power Station", dated May 22, 1972, is the flow value used in calculating the NPSH for the ORS pumps. The proposed change in the rated head value will correctly represent the 'rated head' as given in Specification NAS-44, Rev. 4. These changes are acceptable because the proposed rated flow and head values are the original design values that were used by the vendor to design the pump. Current design basis calculations are based on the actual pump witness test curve for the supplied pumps, which pass through or above the original design head and flow. The proposed change does not alter the intent of the original statement, impact any design basis information, or change a commitment. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No analyses are affected by this change, subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #9
Revise the statement discussing operation of the casing cooling subsystem to indicate that the casing cooling pumps and MOVs are normally manually operated from the control room at the end of casing cooling injection. FN 94-040 and supporting Safety Evaluation 94-SE-MOD-030 have proposed revising this statement in Section 6.2.2.2 to indicate that the casing cooling pumps and MOVs are normally manually operated from the control room at the end of casing cooling injection. However, during implementation of the UFSAR change request, the words "at the end of casing cooling injection" were not incorporated. This proposed change restores the UFSAR to the previously evaluated and approved words provided in FN 94-040 and is acceptable. Accordingly, this item will not be considered further in this safety evaluation.

Change Item Sub #11

Revise the statement discussing the design, QA category, and capacity of the casing cooling pumps to indicate that both units design requirements and QA categories are identical, but the capacities are different. The Unit 1 pumps have a design capacity of 3,000 gpm and the Unit 2 pumps have a design capacity of 1,000 gpm. The original intent of this statement was to provide the design, QA category, and capacity of the casing cooling pumps. The statement currently indicates that both units' pumps have the same design, QA category, and capacity. Although the design and QA category of the pumps are the same for Units 1 and 2, the capacities are different. Based on the pump nameplates for Pumps 1-RS-P-3A and 3B, the Unit 1 casing cooling pumps were furnished by Bingham-Willamette and are rated at 3000 gpm at a TDH of 75 ft. These unit 1 pumps were installed after the initial construction of unit 1 via DCP 78-06, "Casing Cooling Subsystem" and the supporting safety evaluation. The Unit 2 casing cooling pumps were installed during initial construction and were purchased in accordance with Specification NAS-476. The Unit 2 pumps are rated at 1000 gpm, which is bounding. The higher capacity pumps will result in an increase in NPSH margin for the ORS pumps. The current calculations for the casing cooling system flow to the ORS pump suction, which have been used in containment analyses calculations, are based on the "weak" pump rating of 1000 gpm. The proposed revision resolves a deviation between current plant design and the description of the design presented in the UFSAR, but does not change the intent of the original statement, and is, therefore, acceptable. Since the existing containment analyses remain bounding, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No analyses are affected by this change, subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #12

Change the statement that discusses where the electrical power for the casing cooling subsystem originates to indicate that the casing cooling equipment power source originates in 480V motor control centers in the Auxiliary Building, with the exception of cooler 2-RS-MR-2. Electric power for Cooler 2-RS-MR-2 originates in the Fuel Building. The original intent of this statement was to describe the location of the electrical power for the casing cooling equipment. Currently, the statement indicates that all casing cooling equipment is powered from power supplies originating in the Auxiliary Building. This is true for all casing cooling equipment, except Cooler 2-RS-MR-2, whose power supply originates in the Fuel Building as indicated on Drawing 12050-FE-1J. Since both the Fuel Building and the Auxiliary Building and their associated motor control centers are seismically designed and mounted, there is no affect on the reliability of the power supplies for the casing cooling equipment. This change does not alter the original intent of this statement or the ability of the casing cooling subsystem to provided the additional NPSH required for the outside recirculation pumps. Since the reliability of the power supplies for the casing cooling subsystem is maintained, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #13

Change the volume median diameter of the droplets for the nozzles in the recirculation spray headers to be consistent with the manufacturer's data. The original intent of the statements being revised was to describe the spray droplets and the combination of spray nozzle types that are oriented to obtain a wide distribution of varying sized spray droplets, so as to provide maximum containment spray coverage. According to the nozzle manufacturer's data, the volume median diameter of a droplet varies for each size of nozzle and is dependent on the differential pressure. As shown on drawings 11715-FP-14B-8 and 12050-FP-14D-8, there are two different size nozzles used in the RS headers. Therefore, since differential pressure varies during the accident, each size nozzle has its own specific volume median diameter at a specific differential pressure. The proposed changes indicate the droplet size for each of the nozzles used in the recirculation spray headers at the 20 psid differential pressure that is expected in the headers during an accident. The calculation that determines the thermal effectiveness of the RS droplets, 01040.7810-US(B)-277-0, "Recirculation Spray System Thermal Effectiveness," uses the manufacturer's data to determine the droplet size and thermal effectiveness. The results of this calculation are used in the LOCTIC analysis for the containment depressurization Analysis of Record (AOR). The proposed changes are consistent with the values used in the containment depressurization AOR and represent the volume median diameter for each type nozzle based on the manufacturer's. This change does not alter the intent of the original statement, change any design basis information, or alter the ability of the Recirculation Spray System to perform its intended design function. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No analyses are affected by this change, subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #14
Remove the word "Signal" from the title of the summary table in Section 6.2.2.2, "Estimated Time After DBA Signal and Loss of Offsite Power (sec)," since the times presented in the table are actually from the start of the event and, there is no such thing as a "DBA signal." Remove the 10-second value for "Diesel at rated voltage and speed," in the Recirculation Spray Pump column. Also, change the introductory sentence for this summary table to indicate that the summary table provides the individual events that contribute to the time delays in making the quench spray pumps and the recirculation spray pumps function after a DBA, not after a CDA signal, as currently stated. The summary table in Section 6.2.2.2 indicates the individual times that contribute to the total time before quench spray and recirculation spray become effective after a Design basis accident (DBA). Although the introductory sentence for the summary table indicates that the individual events presented in the table are after a CDA signal, the actual times in the table are for the events that occur after a DBA, including the CDA signal that is listed as an event in the table. The 10-second value for "Diesel at rated voltage and speed," in the Recirculation Spray Pump column will be removed, since this 10 seconds is concurrent with the RS pumps' delay timers and is not an individual contributor in the delays that occur prior to the flow of recirculation spray from the headers. Changing the introductory statement and the title of the summary table is acceptable because it accurately describes the values presented and does not change the original intent of the table, which was to indicate that there is a time delay between the onset of an accident and the time at which quench spray and recirculation spray become effective. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the proposed changes do not alter the operation or performance of any RS system component or any other SSC's important to safety, there is no possibility for an accident or malfunction of a different type that any evaluated previously in the safety analysis report being created. No analyses are affected by this change, subsequently the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #15
Clarify the discussion of the design classification of the motor-operated and check valves of the casing cooling subsystem to indicate that only the motor-operated and check valves in the lines from the casing cooling tank to the outside recirculation spray pumps are designed to ASME III, Class 2. The existing statement in the UFSAR infers that the casing cooling pumps' discharge MOVs and all check valves in the casing cooling subsystem, including the casing cooling tank recirculation pump discharge check valves, are designed to ASME III, Class 2. The casing cooling pumps' discharge MOVs and associated check valves are located in piping designated "Q2" and are, therefore, required to be designed to ASME III, Class 2 specifications. However, the casing cooling tank recirculation pump discharge check valves, located in "Non-Q" piping within the casing cooling subsystem, are not designed, or required to be designed, to ASME III, Class 2 specifications. As discussed in Engineering Transmittal CME 95-0051, Rev. 0, there is no realistic scenario that could result in contaminated sump water entering the casing cooling tank. Therefore, the "Non-Q" designation for the piping and components in the casing cooling tank recirculation portion of the casing cooling subsystem is justified and this change is acceptable. The proposed clarification resolves a discrepancy between current plant design and the description of the design presented in the UFSAR. The proposed clarification does not change the intent of the original statement, impact any design basis information, or change a commitment. Since the proposed changes do not involve

physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #17
Clarify the statement in Section 6.2.2.2.4 to indicate that the stator temperature rise currently indicated is for the quench spray pump motors. Also, add the stator temperature rise for the inside and outside recirculation spray pump motors. Section 6.2.2.2.4 discusses the quench spray (QS) pump motors, the inside recirculation spray (IRS) pump motors, and the outside recirculation spray (ORS) pump motors. The specific statement being changed states that the stator temperature rise is 90 degrees C at 115% load, but does not indicate that this is for any specific pump motors. However, the specifications for the QS, IRS, and ORS pump motors indicate that the stator temperature ratings are different for each of the QS, IRS, and ORS pump motors. Specifically, Specification NAS-44 indicates that the stator temperature rise for the IRS pumps is 80 degrees at 100% load, Specifications NAS-44 and NAP-0093 indicate that the stator temperature rise for the ORS pumps is 80 degrees at 115% load, and per Purchase Specification NAS-148, the stator temperature rise for the Quench Spray Pumps is 90 degrees at 115% load. These different stator temperature rises, proposed to be added to the UFSAR for each system's pump motors, have been used in the QDRs that document the equipment qualification for the QS, IRS, and ORS pump motors. Therefore, updating the UFSAR to include the specific stator temperature values is acceptable, because there is no change in the motor design basis information used in determining the acceptability of each motor to meet the required equipment qualification, and there is no change in commitment. Since there is no impact on the performance of the QS or RS equipment or system design, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #18
Reword the statement in Section 6.2.2.2.4, Motors, that discusses the periodic electrical insulation tests performed during the lifetime of the equipment to indicate that two tests are performed: "megger" tests of the insulation and periodic motor tests. The original intent of this statement was to describe the types of tests performed to ensure QS and RS motor integrity. Two types of procedures are performed on the QS and RS motors. Following maintenance of the QS and RS motors an Electrical Maintenance Procedure is performed which "megger" tests the insulation to ensure its integrity. Periodically procedures inspect, service, and run the quench spray and recirculation spray motors to ensure that they remain in a reliable operating condition. The proposed change provides clarification to accurately reflect current plant testing and does not change the intent of the original statement. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #19
Remove note "a" from the table in Section 6.2.2.3.2.1 that provides the flow rates and NPSH values for the recirculation spray pumps, because the flow rates used to calculate the NPSH values are not the "rated flow rates", as indicated in note "a": they are calculated flow rates. The original intent of the table in Section 6.2.2.3.2.1, "NPSH Analyses, Methods, and Procedures," was to present the flow rates and NPSH values for the inside recirculation spray (IRS) and outside recirculation spray (ORS) pumps. Note "a" for this table indicates that rated flow rates were used for the NPSH calculations. This is incorrect for the ORS

pumps, because the value of 3,640 gpm, listed in the table is not the rated flow rate given in Specification NAS-44. In accordance with Specification NAS-44, "Specification for Recirculation Spray Pumps," the rated capacity of the ORS pumps is 3,700 gpm. Section 6.2.2.3.2.1 indicates that the LOCTIC computer program is used to calculate the net positive suction head available (NPSHA) for the inside and outside containment recirculation spray pumps and that the inputs to the LOCTIC code are listed in Table 6.2-45. Table 6.2-45 indicates that the IRS pump flow is 3,300 gpm and the ORS pump flow is 3,640 gpm. The ORS pump flow of 3,640 gpm is the 'calculated' flow that the ORS pumps will deliver, not the ORS pumps' "rated" flow value of 3,700. The proposed change to remove note "a" from this table is acceptable, because it does not change the original intent of Section 6.2.2.3.2.1, and the inputs to the LOCTIC code used in calculating the NPSH values are conservative. Since the proposed change does not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No analyses are affected by this change, subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #20
Reword two descriptions in Section 6.2.2.4.2, which describe how full flow testing of the inside recirculation spray pumps is performed, to indicate that testing is accomplished by rotating the installed elbow spool piece, not by removing the straight spool piece and installing an elbow spool piece. Also, revise Figure 6.2-68, "Recirculation Spray Subsystem Flow Testing Arrangement," to indicate the correct normal operating position and the test position of the elbow spool piece. The original intent of these statements and figure 6.2-68 was to describe the test used to full flow the inside recirculation spray (IRS) pumps. Testing of the IRS pumps is performed in accordance with 1/2-PT-64.8, "Flow Test of the Inside Recirculation Spray Pumps." In accordance with this procedure, the pump discharge elbows are rotated and connected to the recirculation loop. Also, Drawing 11715-FF-7C-2, "Recirculation Spray Pump Pull Space Removal and Portable Dike Arrangement," depicts the elbow installation during normal operation and depicts how the elbow can be rotated and connected to the recirculation loop for testing. Figure 6.2-68 inaccurately shows a straight spool piece installed during normal operation and will also be corrected. The proposed change does not alter the normal operation of the RS system. The system still maintains its design function to provide spray water to the containment in the event of a serious accident. This change is acceptable because it accurately describes the testing methods but does not change the intent of the original statement or alter the capability to test the IRS pumps. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #21
Change the statement in Section 6.2.3.1.1 discussing the time at which recirculation spray flow becomes effective from "5 minutes" to "approximately 5 minutes". Section 6.2.3.1.1, "Iodine Removal Coefficient Evaluation," provides a general discussion of the operation of the recirculation pumps and an explanation of how they provide water to the spray nozzles so that an atomized spray is produced for assisting in reducing iodine in the containment atmosphere following a design basis accident. The statement as currently written indicates that the recirculation spray becomes effective at "exactly" 5 minutes following an accident. This statement is not completely accurate. Based on the latest SWEC containment analysis in Calculation 01040.7910-US(B)-278, Rev. 2, the IRS start time is 268.05 seconds and the ORS start time is 316 seconds. The proposed change indicates that recirculation spray becomes effective at "approximately" 5 minutes following an accident, not "exactly" 5 minutes as currently indicated. This proposed change is acceptable because it does not change the intent of the original statement. The recirculation spray system will continue to provide an atomized spray, with the same surface diameter, to the containment following an accident. Also, this change does not alter the design basis of the system or change a commitment. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no

increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the proposed changes do not alter the operation or performance of any RS system component or any other SSC's important to safety, there is no possibility for an accident or malfunction of a different type that any evaluated previously in the safety analysis report being created. No analyses are affected by this change, subsequently the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #23
Add a note to Table 6.2-42, "Recirculation Spray Subsystem Leakage Outside Containment," to indicate that the individual leakage values are original design values and may be exceeded, as long as the "Total" value for uncollected leakage outside of containment from the ECCS recirculation loop and the recirculation spray subsystems does not exceed 900 cc/hr. Also, add an "s" to the word subsystem in the title of the table.

The original intent of Table 6.2-42, as indicated in the text directing the reader to this table, was to describe the total potential leakage from the RS subsystems and the RS subsystems sources that may contribute to the total potential leakage outside the containment. Currently, ECCS leakage values are limited to 900 cc/hr to ensure that the offsite dose limits of 10 CFR 100 are met following a DBA. The value of 900 cc/hr is the sum of the potential leakage sources outside of containment. Specifically, it is the sum of the total potential leakage from the RS subsystems, 241 cc/hr, indicated in UFSAR Table 6.2-42, "Recirculation Spray Subsystem Leakage Outside Containment," and the maximum potential leakage from ECCS components, 659 cc/hr, indicated in UFSAR Table 6.3-6, "Maximum Potential Recirculation Loop Leakage External to Containment." ½-LOG-6F, "Safeguards Log Readings," ensures the leakage limit of 900 cc/hr is met.

Twice the allowed leakage of 900 cc/hr (1800 cc/hr) is used in the NAPS LOCA Dose Analysis (PA-0075). Calculation PA-0075 concludes that even with the assumed leakage value of 1800 cc/hr, offsite doses will remain within the limits of 10 CFR 100 and dose to the control room operator will be within the limits of GDC 19.

Therefore, based on the total leakage value of 1800 cc/hr assumed in the offsite dose analysis of record, it is apparent that individual leakage values for each leakage control component may exceed the leakage rate identified in the table, as long as the total leakage outside of containment from the ECCS recirculation loop and the recirculation spray subsystems does not exceed 900 cc/hr. The proposed footnote addition to Table 6.2-42 and the change in the title are acceptable because they do not change the original intent of the table, impact any design basis information, or change a commitment. Since the proposed change does not involve physical changes to the facility or procedural changes, and the leakage value of 1800 cc/hr assumed in PA-0075 is unchanged, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No analyses are affected by this change, subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #25
Reword the sentence in Section 9.3.3.2 to indicate that the LHSI and ORS pump motors and pump discharge lines are located in separate cubicles at "approximately" the 256-foot floor elevation in the Safeguards Building, not exactly the 256-foot 3-inch elevation as currently stated. Section 9.3.3.2 discusses the design basis of the vent and drain system. The specific statement is concerned with the sumps in the Safeguards Building. The intent of this statement is to indicate the sources that could provide water to the safeguards sump. As shown on drawings 11715-FP-4B-18 and 11715-FP-4C-17, the Unit 1 LHSI and ORS pump motors are located in their cubicle in the Safeguards Building floor that has a L.P. Elevation of 256'3" and a H.P. Elevation of 256'6" (Typ). The Unit 2 LHSI and ORS pump motors are shown on drawings 12050-FP-4E-11 and 12050-FP-4D-13 to be located in their cubicle in the Safeguards Building floor which is at an elevation of 256'6". Clarifying the location of the pump motors and discharge lines to indicate that they are not specifically located at the 256 foot 3 inch elevation of the Safeguards

Building does not change the intent of this statement. In addition, this change does not affect the ability of the sumps to provide a high level alarm if such a condition were to exist, and therefore, is acceptable. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the recirculation spray system to perform its design function in the event of a DBA, nor is there any change in the likelihood that any credited equipment will fail to perform. The reported results for containment peak pressure, containment depressurization time, containment subatmospheric peak pressure, and doses for the control room and exclusion area boundary or low population zone are unchanged. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regards to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined to not represent an unreviewed safety question.

99-SE-OT-07

Description
North Anna UFSAR Change Request No. FN 98-025
UFSAR Change Request No. FN 98-025 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss North Anna's Reactor Protection System. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's Reactor Protection System.

Summary

The following editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any Reactor Protection System components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub # 5
Removes the reference to the latest report revision number described in the UFSAR associated with Regulatory Guide 1.97, Technical Report PE-0013 so that future UFSAR changes will be unnecessary.

The current revision of North Anna's plant specific Technical Report PE-0013 is Revision 5 (Rev 5). The UFSAR's reference to the current "Revision Number" has not been appropriately updated in the UFSAR. The UFSAR indicates "Rev 1" as the latest revision of this report. Rather than correct the latest "Revision Number" in the UFSAR to "Rev 5," a removal of the Technical Report's "Revision Number" is proposed. This would not change North Anna's commitment to maintain appropriate updates to Technical Report PE-0013.

Change Item Sub # 23
Replaces an incorrect spelling of the word "train" in the UFSAR Table 7.2-1 associated with the list of reactor trips.

The UFSAR contains a typographical error in Table 7.2-1, Item 20. The term "train" was mistyped. The terminology "train" is appropriate to the description of the Reactor Protection System and General Warning feature associated with the solid state protection system as described in WCAP-7485-1, Page 3-27. A change is proposed that will state the proper term and present the document in correct grammar.

Change Item Sub # 25
Replaces the UFSAR notes on Figure 7.2-1 with more legible notes.

Notes 2 and 6 on Figure 7.2-1 are illegible. Additionally, portions of note 6 should contain more detailed information. Control Drawing NA-DW-5655D33, Sheet 1 of 16, identifies the correct contents of Notes 2 and 6.

Change Item Sub # 51
Replaces an incorrect spelling of the word "actuated" in the UFSAR summary remarks associated with slave relay testing.

A typographical error in Section 7.3.2.1.5.11 was noted. The term "actuate" was mistyped. The term should be "actuated." In other words, the past tense indicating that the slave relays' operating results are "actuated equipment."

Change Item Sub # 56

Removes a portion of the UFSAR approved for an earlier implementation associated with the removal of Tables 7.3-2, 7.3-3, and 7.3-4.

An earlier Revision 23 to the UFSAR failed to fully implement all the changes approved for incorporation into this revision. FN 92-054 was approved and distributed as part of Revision 23 to the UFSAR. FN 92-054 was approved based on deleting unnecessary details from the UFSAR. In order to correct this earlier oversight, a second package, FN 96-075, was created on 12-11-96. FN 96-075 removes Tables 7.3-2, 7.3-3, and 7.3-4 based on management's direction. The features described by these tables are consistent with features presented in the Technical Specifications. Changes associated with FN 96-075 are incorporated into the current package FN 98-025 in order to complete this earlier proposal.

Summary:
The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, or a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined to not represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and the reason an unreviewed safety question does not exist are presented for each of these changes.

Change Item Sub # 1
Adds a number of similar justification statements to the UFSAR to explain North Anna's position and conformance with IEEE 279-71 based on an issue raised by Westinghouse in its 1-10-90 letter (VRA 89-767) associated with random single failures. Also adds clarifying remarks and corrects typographical errors in Section 7.2.2.3.5.

An earlier UFSAR change request package, FN 92-005, addressed a portion of the resolution associated with complete conformance to IEEE 279-71. Complete conformance is associated with the possibility of an adverse random failure scenario as described by Section 4.7.3 of this standard. The possibility of an adverse scenario is described as a coincident failure of independent steam generator levels resulting in a loss of steam generator level protection. This type of postulated random single failure would be contrary to the design standard described by Section 4.7.3. Westinghouse reviewed this adverse scenario in their letter of 1-10-90 (VRA 89-767) and concluded that a rewording of Section 7.2.2.3.5 of the North Anna UFSAR was an appropriate way to explain the conformance inadequacy between IEEE 279-71 and this postulated scenario. Virginia Power followed through with Revision 32 to the UFSAR and resolved this portion of the needed UFSAR change. To fully resolve the remaining inconsistencies a new package FN 92-005, Rev. 1, was created to address a number of statements remaining throughout the UFSAR that make it clear that an exception to IEEE 279-71 is justified.

Additionally, FN 92-005, Rev. 1, addressed clarifying remarks and corrections of typographical errors in Section 7.2.2.3.5.

Changes associated with FN 92-005, Rev. 1, are incorporated into the current package FN 98-025 in order to complete this earlier proposal. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 2
Replaces vague or incorrect terminology associated with the ESF equipment locations described in Table 3.11-2.

UFSAR Table 3.11-2 contains terminology problems. The review discovered various terminologies associated with the location of ESF devices that should be clarified to better describe the designated locations of ESF devices. Changes to terminology for locations of Quench Spray, Recirculation Spray, and Auxiliary Feedwater features are proposed. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 3
Replaces the UFSAR description associated with the Reactor Protection System terminology to explain more clearly the relationship between the Reactor Trip System and AMSAC terminology.

The AMSAC function is incorrectly described in relation to the Reactor Protection System terminology in Section 4.3.1.7 of the UFSAR. The Reactor Protection System is the "whole" protection signal system including the Reactor Trip System and the Engineered Safeguards Actuation System. Functionally the AMSAC must be a backup to only a portion of the overall Reactor Protection System. The AMSAC must be a backup to the Reactor Trip System. 10 CFR 50.62 b and c indicate that AMSAC is for the purpose of having a system independent of the Reactor Trip System while the "whole" protection system remains functional on its own. The proposed rewording would make clear that AMSAC must be independent of the Reactor Trip System and not the "whole" Reactor Protection System. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 4
Replaces an ambiguous UFSAR description pointing the reader to various types of reference drawings.

The UFSAR lacks clarity pointing the reader to particular types of drawings. The referenced drawings in Section 7.1.3.3.1.2 are not all drawings properly referenced to as functional diagrams. Some are logic drawings and some are functional diagrams. Additionally, the apparent categorization of these drawing references into two groups of drawings is unclear. The revised wording points to the drawings as a single group so as to minimize ambiguity. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item #6
(A) Replaces out-of-date listings of "Reactor Trip Signals," "Trip Setpoint Accuracy," and "Ranges" described in Table 7.2-2.
(B) Replaces the definition of "Trip Accuracy."

(A) "Reactor Trip Signals," "Trip Accuracies," and signal "Ranges" listed in Table 7.2-2 are out-of-date and incomplete. The information in Table 7.2-2 is intended to describe instrument "Trip Accuracy" and instrument signal "Ranges" needed for reactor safety.

Setpoints in nuclear safety-related instruments shall be selected to provide sufficient margin between the trip setpoint and the safety limits to account for accuracies, drift, uncertainties and dynamic responses.

The original setpoint determination methodology used by Westinghouse has been modified to be consistent with the current industry methodology documented in ANSI/ISA-S67.04-1982, "Setpoints for Nuclear Safety Related Instrumentation." This Standard was developed to specifically address the establishment and maintenance of setpoints for individual safety-related instrument channels. It was believed that a more thorough consideration of setpoint drift was necessary in the design, test, purchase, installation and maintenance of nuclear safety-related instrumentation. This Standard was endorsed by the NRC in R. G. 1.105, "Instrument Setpoints for Safety-Related Systems," dated 1982. Specifically, "ISA-S67.04-1982 establishes requirements acceptable to the NRC Staff for ensuring that instrument setpoints in safety related systems are initially within and remain within the technical specification limit."

Channel instrumentation uncertainty (error) is determined through the use of the Channel Statistical Allowance (CSA) methodology. The square root of the sum of the squares method is used to determine the CSA value for a setpoint. This is based on the definition documented in Virginia Power Standard STD-EEN-0304. The NRC has previously agreed with these conclusions based on their review of STD-EEN-0304, as documented in Inspection Report No. 50-338/89-10 and 50-339/89-10, North Anna 1 and 2, dated April 1989.

For a given trip, the difference between the setpoint value identified in the Technical Specifications and the Safety Analysis Limit determined by the accident analyses is the Total Allowance. The difference between the Total Allowance and the CSA calculated uncertainty represents the allowable margin. Thus, as long as the CSA calculated uncertainty is equal to or less than the Total Allowance, then operation within design and licensing bases is ensured. (The assumed accident analysis envelope is conservative with respect to the Technical Specifications) The Setpoint Bases Document (Technical Report EE-0101) documents the CSAs and the evaluation of the associated margins. This report documents that the current methodology and the changes identified in item No. 6 continue to meet design and licensing bases requirements.

Since this change has been evaluated and continues to meet design and licensing bases requirements, it does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

UFSAR Table 7.2-2 is out-of-date in two ways: (1) Table 7.2-2 does not identify the currently appropriate numerical values of "Trip Accuracy." Technical Report EE-0101 and its associated calculations identify currently appropriate statistical allowance values. EE-0101 assesses the current appropriate Technical Specification trip setpoint values. EE-0101 reports the relevant instrument uncertainty associated with appropriate setpoint "trip functions." The current EE-0101 assessment and its applicable statistically determined values designate the current instrument inaccuracy. Current "Trip Accuracy" values in Table 7.2-2 are out-of-date accuracy determinations that need to be consistent with current values determined by the EE-0101 assessment.

(2) Table 7.2-2 does not describe a full and appropriate list of "Reactor Trip Signals." EE-0101 assesses the appropriate Reactor Trip functions and designates applicable and appropriate accuracy values. The current listing of appropriate "Reactor Trip Signals" listed in Table 7.2-2 does not provide a full listing of appropriate reactor trips and does not agree with appropriate EE-0101 listings. The current trips listed in Table 7.2-2 are those reactor trips that were relevant to the accident analysis Table 15.1-3. Table 15.1-3 identifies trip functions assumed by the accident analysis with each of these functions having some relevant instrument accuracy associated with it. EE-0101 provides the information to correlate both tables in Chapters 7 and 15. Table 7.2-2 needs to be a full listing of "Reactor Trip Signals" with appropriate notes indicating whether or not particular trip accuracies are considered by the accident analysis.

(B) The "Trip Accuracy" definition is out-of-date in relationship to the use of current terminology. The definition of "Trip Accuracy" in Section 7.1.1 describes the instrument error portion surrounding a comparator's trip setpoint. The current methods establish Channel Statistical Allowances (CSAs) as a defined error term identified with a particular instrument setpoint. CSA defines a number or quantity that identifies the uncertainty that an instrument setpoint will not exceed when functioning under specified operating conditions. Updating the definition of "Trip Accuracy" brings this UFSAR term in line with the current usage of CSA terminology as it applies to a particular instrument's setpoint uncertainties. This revised definition also includes a reference to EE-0101, and this document is to be added to the Reference Document list at the end of Section 7.1. Since this change has been evaluated and continued to meet design and licensing bases requirements, it does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 7
Replaces the UFSAR description associated with two Section 7.1 drawing titles so that the drawing titles are consistent with other references.

A drawing title and drawing number listed in Section "7.1 References" of the UFSAR are designated inconsistently in relation to control drawing titling and numbering conventions. The titling of drawing 11715-LSK-27-12B does not correspond to the control drawing title. The titles of drawings should correspond in the various documentation for purposes of consistency. Additionally, drawing 11715-LSK-27-12F did not identify a consistent drawing numbering designation. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 8
Replaces an out of date UFSAR description about response time testing with a description of North Anna's current practices.

The UFSAR Change Request Package FN 90-031 was proposed during the Electrical Engineering review of the UFSAR in the 1990s time frame. This UFSAR Verification Project discovered several descriptions in Section 7 that require revision. The rewording replaces the description of the Reactor Trip System performance requirements for the system response time verifications. The rewording revises the original treatment of preliminary response time verifications and replaces the original commitment with the current operational practices for the periodic demonstration of response time determinations.

Changes associated with FN 90-031 are incorporated into the current package FN 98-025 in order to complete this earlier proposal. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 9
Replaces inconsistent UFSAR terminology associated with the negative flux rate feature.

The UFSAR is inconsistent in terminology used to discuss the power range high negative neutron flux trip. Earlier Westinghouse terminology referred to the negative flux rate trip feature as "dropped rod (negative rate) function." Westinghouse made appropriate illustrations that this function was for the purpose of protecting the reactor core from multiple rod drops. Current usage of this term is used in the Technical Specifications and plant procedures more in terms of a "negative flux rate (dropped rod) function" rather than a "dropped rod (negative rate) function." This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 10
Replaces the UFSAR "plant" blackout terminology with more editorially consistent "station" blackout terminology.

The UFSAR uses inconsistent terminology in Section 7.2.1.1.4 associated with the term "plant" or "station" blackout. The use of the term "station" blackout is preferred to the term "plant" blackout. For example, as described in Section 7.4, the loss of offsite AC power in relationship to the station auxiliaries is properly described as a "station" blackout and not a "plant" blackout. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub #11
Replaces an out of date UFSAR description with a correct description about the actual number of reactor coolant pump undervoltage devices installed.

The UFSAR Change Request Package FN 90-31 was proposed during the Electrical Engineering review of the UFSAR in the 1990 time frame. This UFSAR Verification Project discovered several descriptions in Section 7 that required revision. The proposed rewording describes the number of reactor coolant pump bus undervoltage relays. The proposed rewording revises the number of undervoltage relays from one per bus to two relays installed per bus as correctly shown on NA-DW-5655D33, Sheet 5.

Changes associated with FN 90-31 are incorporated into the current package FN 98-025 in order to complete this earlier proposal. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 12
Replaces an out of date UFSAR reference to Figure 7.2-7 with a new reference to Figure 7.2-13 to illustrate the current AMSAC System.

Reference to Figure 7.2-7 identified in Section 7.2.1.1.5 of the UFSAR does not show the AMSAC system logic. Section 7.2.1.1.5 indicates that AMSAC will be shown on Figure 7.2-7. An entire logic diagram is needed to show the overall circuitry. A new Figure 7.2-13 is proposed. The new UFSAR figure 7.2-13 is modeled after station control drawing 11715-LSK-5-8L. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 13
Adds a supplemental description to the UFSAR to more accurately describe the High High Steam Generator level signal.

A complete functional description of the High-High steam generator level signal needs to include an additional description. High high level actuates four features including the closing of the main feed line isolation valves, MOVs-FW-154 A, B, & C. This feature, the closing of the main feed line isolation valves, needs to be added to the discussion in section 7.2.1.1.6 for the purpose of completeness. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 14
Replaces the title of UFSAR Table 7.2-3 with a title containing more specific terminology.

The terminology associated with the title of Table 7.2-3 could be more specific. Currently Table 7.2-3 is identified as listing all protection system interlocks. Table 7.2-3 describes interlocks more appropriately associated with the Reactor Trip portion of the Reactor Protection System. A more specific title is to identify Table 7.2-3 as associated with "Reactor Trip System Interlocks." This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 15
Adds a reference to the UFSAR to point out that Figure 7.2-5 is associated with describing an appropriate reference to the P-7 interlock.

UFSAR Change Request Package FN 90-31 was proposed during the Electrical Engineering review of the UFSAR in the 1990 time frame. This UFSAR verification project discovered several descriptions in Section 7 that required revision. Proposed rewording will add a description to point the reader to Figure 7.2-5 which in addition to Figure 7.2-6 and 8 shows the proper application of the P-7 permissive.

Changes associated with FN 90-31 are incorporated into the current package FN 98-025 in order to complete this earlier proposal. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 16
Adds clarification to the UFSAR description associated with the P-8 permissive conditions so that the UFSAR and the current Technical Specifications are consistent.

The UFSAR Change Request Package FN 90-31 was proposed during the Electrical Engineering review in the 1990 time frame. This UFSAR verification project discovered several descriptions in Section 7 that required revision. The proposed rewording removes the P-8 descriptions as P-8 relates to permitting operation with less than two loops. The proposed removal deletes any reference to how P-8 interlocks with inactive loop operation at power levels below 30% since Technical Specifications 3/4.4.1 "Reactor Coolant Loops and Coolant Circulation" requires that "all Reactor Coolant loops shall be in operation with power removed from the loop stop valves' operators" in Modes 1 and 2. This proposal removes a conflict between the requirements of the Technical Specifications and the description of the permission of less than 3 loop operations below 30% power. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 17

Adds a qualifying remark to the UFSAR description about non-standard operating configurations so that the reader will know what is required before a two loop, i.e., non-standard operating configuration is possible.

UFSAR Change Request Package FN 92-031 was proposed during the Electrical Engineering Review in the 1990's time frame. This UFSAR verification project discovered several descriptions in Section 7 that require revision. The proposed rewording would add description to the implication that the resetting of over temperature setpoint for 2 loop operation would be listed in Technical Specifications whenever 2 loop operation was approved. The proposed addition indicates a tentative condition in relationship to the Technical Specifications. The Technical Specifications have a blank in Table 3.2-1 reserved for two loop operating values. Rewording is intended to imply that those setpoints values would be added to Technical Specifications when needed.

Changes associated with FN 90-031 are incorporated into the current package FN 98-025 in order to complete this earlier proposal. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 18
Replaces an out of date UFSAR description about response time testing practices with the current response time testing practices.

The UFSAR Change Request Package FN 92-031 was proposed during the Electrical Engineering review of the UFSAR in the 1990s time frame. This UFSAR Verification Project discovered several descriptions in Section 7 that require revision. The proposed rewording replaces the description of the reactor trip breakers' performance requirements for system response time verification. Proposed rewording revises the original treatment of preliminary response time verifications and replaces the original commitment with the current operational practice for periodic demonstrations of response time determinations.

Changes associated with FN 90-031 are incorporated into current package FN 98-025 to complete this earlier proposal. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 19
Replaces a grammatically incorrect UFSAR description about the Reactor Coolant System's I&C signals in relationship to various control system uses.

The UFSAR topic sentence in Section 7.2.2.3.2 is poorly worded. Section 7.2.2.3.3 provides an analysis of specific control system and protection system interactions. The topic sentence for the protection system's reactor coolant temperature measuring function poorly describes the relationship between the protection system and control System. The topic sentence is grammatically incorrect and needs correction in order to adequately express this important relationship. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 20
Replaces an ambiguous description about the possibility of a pressurizer control system interaction.

The UFSAR provides a lack of clarity about which pressurizer I&C system and the possibility of a spurious control system interaction. Section 7.2.2.3 provides a discussion about specific control system and protection system interactions. Section 7.2.2.3.3 describes how one pressurizer control channel can interact adversely with associated control system devices. Section 7.2.2.2.3.3 does not make clear that the possible interaction originates from the pressurizer control system and not the pressurizer protection system. Section 7.2.2.3.3 needs clarification to point the reader to the pressurizer control system as the source of this disturbance or adverse interaction. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 21
Replaces an ambiguous description about the possibility of a pressurizer level error.

The UFSAR needs to clarify Section 7.2.2.3.4. Section 7.2.2.3.4 describes the sensitivity of the pressurizer water level instrumentation to error. Section 7.2.2.3.4 describes the possibility of some additional instrument error due to effervescence of hydrogen in the instrument's reference leg. DCP 81S-08A addresses modifications to these reference legs to ensure operability. Section 7.2.2.3.4 is rewritten to make a clearer explanation about this error possibility. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 22
Replaces an out of date UFSAR reference to the document location currently associated with the control and protection setpoints.

The control and protection instrument trip setpoints are to be found in documents other than currently described by the UFSAR. Protection and permissive settings are to be currently found in the Technical Specifications. Control settings are to be currently found in the North Anna Setpoint Document. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 24

Adds recently approved UFSAR changes associated with an inoperable main steam safety valve and corresponding changes to NI limitations.

The UFSAR Change Request Package FN 96-044 was proposed on 5-20-96 for inclusion into the UFSAR. Prior to 5-20-96 NRC had approved the maximum allowable power range neutron flux setpoint values. The setpoints are applicable whenever the unit is operated with an inoperable main steam safety valve. Implementation of FN 96-044 is needed to document changes already agreed to by the NRC.

Changes associated with FN 90-044 are incorporated into the current package FN 98-025 in order to complete this earlier proposal. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 26
Adds the correct annotations for the Auto Shunt Trip blocking feature to UFSAR Figure 7.2-2.

UFSAR Figure 7.2-2 inadequately illustrates the reactor trip signal associated with the Auto Shunt Trip blocking feature. The Auto Shunt Trip feature was added by the implementation of DCP 84-04 in response to Generic Letter 83-28. The installation of the ATWS mitigating system (AMSAC) includes the blocking feature used to test this system. Additionally, Figure 7.2-2 incorrectly notes the routing of the P-4 interlock to Figure 7.2-8. The correct annotation should be Figure 7.7-8. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 27
Replaces an incorrect annotation on UFSAR Figure 7.2-3 referencing Figure 7.2-10.

The note on Figure 7.2-3 indicating that the High Neutron Flux reactor trip signal continues on Figure 7.2-10 is incorrect. Figure 7.2-3 should have a reference to Figure 7.2-2 indicating the High Neutron Flux reactor trip should appear on that drawing. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 28
Replaces incorrect UFSAR annotations on Figure 7.2-6 related to the pressurizer SI block and reset switches.

The annotations on Figure 7.2-6 incorrectly indicate the SI reset and block switches. The drawing shows a single device, while the actual switch consists of two controls on the control board for each train. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 29
Removes an incorrect UFSAR annotation on Figure 7.2-8 showing the Train B logic connection to the turbine trip.

The Electrical Engineering review of the UFSAR in the 1990s time frame discovered inaccuracies with Figure 7.2-8. This UFSAR Verification Project discovered several descriptions in Section 7 that require revision. A UFSAR change package FN 90-31 was proposed to address the needed corrections. The proposed changes to Figure 7.2-8 remove a portion of the drawing seen on Figure 7.2-8 associated with the incorrect connection of the "B" logic train trip signal with the Auto Stop oil pressure logic.

Changes associated with FN 90-031 are incorporated into the current package FN 98-025 in order to complete this earlier proposal. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 30
Removes incorrect information and adds correct annotations to UFSAR Figure 7.2-10 associated with P-7 and P-8 interlocks.

UFSAR Figure 7.2-10 contains incorrect annotations. References associated with the P-7 and P-8 annotations incorrectly point to other figures in Section 7. The P-7 annotation on Figure 7.2-10 does not interconnect with Figure 7.2-8. However, the P-8 annotation on Figure 7.2-10 should interconnect with Figure 7.2-8. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 31
Replaces the current UFSAR rod control system terminology on Figure 7.2-12 with a more descriptive terminology.

The UFSAR provides a lack of correct description on Figure 7.2-12. This figure insufficiently describes the Rod Control System and its devices. Rather than describe the Rod Control System as the "solid state controls," a better description would be to describe the interconnecting parts of the "Rod Control System" as "CRDM," "stationary," "movable," and "lift coils." This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 32
Replaces an out of date UFSAR description about the average reactor coolant temperature with the current hot leg temperature measurements description.

An incorrect identification of the location of the reactor coolant narrow range RTDs is described in the UFSAR. The current description indicates that narrow range RTDs are located in a "bypass loop." Design Changes DC-89-40 and 41 installed new RTDs located within thermo wells affixed to scoops immersed in the reactor coolant flow path. This relocation of the RTDs changed the way in which the coolant temperature is sampled and averaged. The use of scoops obtains representative samples from which the signals are summed and averaged to represent an average hot leg temperature rather than mixing coolant in a "bypass loop" to obtain a representative sample. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 33
Replaces an out of date UFSAR reference identifying the Technical Specifications as the appropriate source document for the maximum allowable time delay information rather than the Technical Requirements Manual.

Section 7.3.1.2 of the UFSAR incorrectly refers to the Technical Specifications as the source document for maximum allowable time delay values. Rather than in the Technical Specifications, maximum allowable time delays or response times are described in the Technical Requirements Manual (TRM). The location of response time values in the TRM was approved by the NRC by License Amendments 187 and 168. NRC's Safety Evaluation Report (SER) approved the relocation of the response time lists from the Technical Specifications to a station controlled document to facilitate management of these limits. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 34
Adds more descriptive wording to the UFSAR to point the reader to optional drawings available in Chapters 5 and 10.

Primary and secondary system sensors are shown on both piping sketches and controlled or referenced drawings for the reactor coolant system. The addition of more descriptive wording is intended to indicate that controlled or reference drawings as well as simplified sketches are used to show the piping locations of the primary and secondary sensors. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 35
Replaces an incorrect UFSAR description of the sizes of the containment leakage monitoring instrument lines.

The UFSAR provides an incorrect description of the size of the stainless steel lines connecting the containment leakage monitoring transmitters to the containment penetration. The actual size of the sensing line is 3/8 inches and not the 1/2 inches currently described in Section 7.3.1.3.2. Engineering Specifications and station drawing 11715-FK-7A indicates the correct size as 3/8 inches for the four containment pressure transmitter sensing lines. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 36
Removes incorrect terminology associated with the "Steam-line isolation" feature.

The UFSAR describes incorrect terminology associated with the "Steam-line isolation" feature. Section 7.3.1.3.2 describes the implementation of this functional design feature as it relates to containment safeguards. This description refers to the "Steam-line isolation" feature as a "Steam-line isolation trip" feature. A better terminology would express this simply as the "Steam-line isolation" feature and remove the term "trip." This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 37
Adds an annotation to UFSAR Figure 7.2-9 showing the correct steam line isolation reset logic.

The UFSAR contains a drawing omission on Figure 7.2-9 "Safeguards Actuation Signals." Control drawing NA-DW-5655D33, Sheet 8 shows the current reset logic. The UFSAR figure does not agree with the control drawing. The proposed redrawing of Figure 7.2-9 would bring this UFSAR sketch up to date by the addition of the correct steam line isolation reset logic symbols based on the latest control drawing. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 38
(A) Replaces an incorrect UFSAR description associated with the "Low-Low" RWST level conditions.
(B) Replaces incorrect UFSAR descriptions about three process analog instruments available during post LOCA recovery conditions.

(A) The UFSAR provides an incorrect description of the RWST "Low-Low" level terminology. Section 7.3.1.3.3.2 incorrectly describes the "Low Low" level signal as being associated with the RWST alarm function. The "Low-Low" level signal is correctly associated with the automatic changeover value from the RWST to the containment sump and not with the "Low" RWST alarm value. The proper application of the "Low" and "Low-Low" terminology to the safety injection process is properly described in Section 7.3.2.10. Section 7.3.2.10 describes the automatic changeover sequence of conditions during recovery following a LOCA event. "Low-Low" actuation conditions are properly associated with the RWST level at which an auto switchover from the RWST to the containment sump occurs. "Low" alarm conditions are properly associated with the RWST level preparing or warning the operator the "Low-Low" conditions are being approached. Operators will take appropriate actions before the "Low" level alarm in accordance with emergency procedures. Relevant terminology should be the same in each section of the UFSAR describing the "Low" alarm conditions. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

(B) The UFSAR provides three descriptions in Section 7.3.1.3.3.2 that do not correctly describe current plant instrumentation. Section 7.3.1.3.3.2 describes a portion of the I&C equipment associated with the implementation of the functional design capability during post LOCA conditions. Section 7.3.1.3.3.2 incorrectly describes the High-Head SI pump discharge pressure; the containment air cooler alarms; and the containment sump level alarms. The subject matter discussed in Section 7.3.1.3.3.2 is intended to illustrate that there are analog channels in addition to the Reactor Trip and SI instruments. These instruments are available to the operator during the post LOCA recovery period. Six process parameters are illustrated: (1) RWST level, (2) High-Head SI pump discharge pressure, (3) pump running status, (4) valve position, (5) containment air coolers, and (6) containment sump level. Each of these process parameters are sensed outside the containment or sensed with qualified instruments located inside the containment. The description of the High-Head SI pump discharge pressure, the Containment air coolers alarms, and the Containment sump level alarm do not correctly describe the installed equipment. In fact, the original FSAR incorrectly describes this equipment and errors in this description have been in the UFSAR since the earliest edition. Corrections to the UFSAR should identify that the charging pumps have analog pressure indication on the pumps' header with no multiple "transmitters," as might be improperly assumed from the current description; containment air coolers with cooling water flow are indicated and not alarmed in the control room; exit temperature that is provided on the process computer is not indicated and alarmed as currently described; and containment sump level is indicated and not alarmed as currently described. Corrections to these three analog instrument

Descriptions would properly describe this equipment as it has been installed. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 39
Replace incorrect annotations on UFSAR Figures 7.2-5, 7.2-7 and 7.2-9.

The UFSAR provides an incorrect annotations on Figure 7.2-5, 7.2-7, and 7.2-9. These figures incorrectly described logic circuits associated with analog actuation signals. For example, (1) the two parts of the Reactor Coolant Pump under voltage sensing devices are not shown on Figure 7.2-5; (2) The 2 of 3 Reactor Coolant Pump under frequency logic is not configured through the Reactor Coolant Pump Breakers as shown on Figure 7.2-5, the bus under frequency Reactor Coolant Pump trip is a separate device and is not associated with the 2 of 3 under frequency trip; (3) A Note 4 should be added and the Figure 7.2-7 should be redrawn in relation to the Steam Line SI manual block and reset controls on Figure 7.2-7 indicating that the manual block and reset switch annotations consists of two separate switches: (4) A correction to Figure 7.2-9 to show the two parts of the SI Actuation switch for the Containment Phase A isolation switch; the Containment Spray Actuation and the Phase B isolation switches. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 40
Replaces a UFSAR reference to Figure 7.3-10 with a better reference to an illustration of the feedwater isolation signals as shown on Figure 7.7-8.

The UFSAR provides an inappropriate reference figure for illustrating the feedwater isolation signal. Section 7.3.1.3.5 Item 10 discusses the actuation of feed water isolation signal. Rather than reference to Figure 7.3-10 showing the generic components of the ESF signal, Figure 7.7-8 is a more appropriate figure for tracing the feed water signal to the actuated devices and its isolation function. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any technical specifications.

Change Item Sub # 41
Replaces a UFSAR Figure 7.3-4 with a better illustration of the containment depressurization signals.

An additional reference about the containment depressurization signal should be added to the containment depressurization discussion in Section 7.3.1.3.5. Section 7.3.1.3.5, Item 11 discusses the containment depressurization actuation signal. Reference to Figure 7.3-4 completes the discussion about the containment depressurization signal and the availability of reserve power. The addition of Figure 7.3-4 shows the generic parts of the relationship between the depressurization signal and the availability of reserve power. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 42
Adds a UFSAR reference Figure 7.3-4 with a better illustration of the safety injection actuation signals.

An additional reference about the safety injection actuation signal is added to the safety injection signal discussion in Section 7.3.1.3.5. Section 7.3.1.3.5, Item 13 discussed the safety injection actuation signal. Reference to Figure 7.3-4 completes the discussion about the safety injection signal and the availability of reserve power. Figure 7.3-4 shows the generic parts of the relationship between the safety injection signal and the availability of reserve power. Also the reference to Figure 7.3-9 noted in Section 7.3.1.3.5, Item 13, was discovered to be inappropriate since this figure is about station service power and has no relevance to the emergency reserve station service discussion. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 43
Replaces a UFSAR reference to Figure 7.3-12 with a correct reference to an illustration of the containment isolation system signals as shown on Figure 7.3-13.

The UFSAR provides an incorrect drawing reference in Section 7.3.1.3.5. Section 7.3.1.3.5, Item 14, introduces drawings associated with containment safeguards. Four drawing are referenced. Figure 7.3-12 is an incorrect reference and should be correctly identified as Figure 7.3-13. Figure 7.3-12 is a figure about the turbine driven auxiliary feedwater pump and an inappropriate reference drawing in relationship to the containment safeguards discussion. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 44
Replaces an overly complex editorial method for referencing one section of the UFSAR to another section of the UFSAR with a more streamlined and direct reference.

The UFSAR provides an overly complex editorial reference in Section 7.3.1.5.1 "Containment Isolation System Description." The current reference described by this section has the results of making two references before the actual reference subject is discussed. Section 7.3.1.5.1 can be streamlined by making a more direct reference to Section 7.2.2.2.1.6. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 45
Replaces an out of date UFSAR description about the purpose of "maintenance checks" and "qualification test data" in relationship to the performance testing of ESF and containment spray cables.

The UFSAR provides an incorrect discussion in relation to ESF instrument cable testing. Performance testing acceptability about the ESF signal cabling does not reach conclusions about long term cable integrity exclusively through "maintenance checks." "Maintenance checks" are typically for the purpose of insuring that instrument cabling is properly installed and tested following any needed replacement activities. Long term cable integrity is established by "qualification test data" that is a documented requirement of 10 CFR 50.49. Section j of 10 CFR 50.49 requires that a qualification record be maintained in an auditable form for all equipment covered by the EQ Rule. This test data is to establish the fact that the cabling will have an extended qualification life. The current wording about performance testing could mislead the reader to the erroneous conclusion that routine performance testing or "maintenance checks" confirm or verify exclusively that cables are qualified. This is not the purpose of "maintenance checks." Cable qualifications are a function of prerequisite testing conducted for the purpose of assuring cabling reliability over the entire life of the facility. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 46
Replaces a UFSAR reference to a Reactor Trip System description with a more direct reference to the Technical Specification's testing requirements.

The UFSAR does not efficiently describe analog testing requirements unless a more direct reference is made to Technical Specifications in Section 7.3.2.1.5.6. Rather than making reference in Section 7.3.2.1.5.6 to Section 7.2.3.3 as is currently described in the UFSAR, a direct reference to Technical Specifications is needed. Section 7.2.3.3 contains no additional testing requirements. The earlier UFSAR Revision 23 removed details about periodic testing requirements from Section 7.2.3.3. A direct reference to the Technical Specifications in Section 7.2.3.3 is proposed to indicate that general testing requirements can be found in the Technical Specifications. Reference to the Technical Specification's general testing requirements in Section 7.3.2.1.5.6 makes the UFSAR's discussion consistent in terms of what general ESF testing requirements are about and that these ESF general testing requirements are similar between reactor trip functions and ESF functions. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 47
Replaces the UFSAR descriptions of channel bistables associated with the blocking of relay logic during analog testing.

The UFSAR provides an inconsistency in terminology associated with Section 7.3.2.1.5.6 " Analog Testing." WCAP-7913 "Process Instrumentation for Westinghouse NSSS Plants Using 7300 Instrumentation" indicates how logic testing relays interface with channel bistables to allow the test signal to function properly. All bistables for a channel must be tripped to allow use of a test signal. This is accomplished by relay logic and not an "amplifier" as currently stated in the UFSAR. In addition, the term "channel bistable" in considered to be more appropriate than the term "channel bistable." Revision to the UFSAR would use the term the "bistable channel device" in its description, rather than the term "bistable amplifiers." This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 48
Replaces the UFSAR description of the testing sequence associated with bistable test relay R-4.

The UFSAR provides an inconsistency in the description of the test sequence presented in Section 7.3.2.1.5.6. WCAP-7913 "Process Instrumentation for Westinghouse NSSS Plants Using 7300 Instrumentation" indicates the sequence by which the bistable test relay R-4 is placed in a test condition.

Once R-4 is setup and energized the circuit is ready for testing and no additional test devices must be positioned. The current UFSAR description of the sequence implies that more switching is needed after R-4 is energized. The proposed change revises the described sequence of testing activities to be more appropriate. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 50
Removes UFSAR statements about a slave relay PM program.

The UFSAR provides incorrect UFSAR statements associated with the description of a "slave relay PM program." Section 7.3.2.1.5.8 currently indicates that in addition to the "testing" of slave relays, slave relays will receive "periodic maintenance." The UFSAR goes on to designate the means of maintenance that is "visual" with the anticipated outcome to detect "marginal relays." These statements referring to what can be perceived as a formalized "PM program" were added to the UFSAR in the June, 1992, time frame in support of Revision 21 to the UFSAR. The references to a formalized "PM Program" are incorrect and misleading statements in relationship to the degree of formalization actually applied to slave relay preventative maintenance practices at North Anna.

A review of station procedures discovered that no formalized "slave relay PM program" was established or created to support the claims made by the UFSAR. However, further review into this apparent oversight indicated that the need for a formalized "slave relay PM Program" was simply not appropriate. Related to the issue of on-line testing of slave relays in accordance with Technical Specification requirements, correspondence of 5-8-89 was submitted to the NRC indicating that "periodic maintenance" of slave relays was an activity Virginia Power planned to pursue. Nevertheless, the NRC fully approved periodic testing at appropriate intervals as an adequate means of slave relay surveillance. "Periodic maintenance," although presented in correspondence to the NRC, was a minor point in the overall discussion of the on-line slave relay testing issue. Since that time, Virginia Power has not seen the need to formalize "periodic maintenance" into a "PM Program." Based on observation of satisfactory slave relay operations, as well as having no industry-wide or manufacturer's recommendations to support more formalized methods, Virginia Power proceeded to adhere to the NRC approved Technical Specifications as an appropriate monitoring method to detect any "marginal relay" failures. Additionally, recent monitoring through the M-Rule Program has not identified a slave relay concern. Technical Specification surveillance requirements continue to be an adequate means to determine if any form of maintenance of this equipment is needed. Slave relays have continued to demonstrate satisfactory performance, and the need for a formalized "PM program" has not been apparent.

Preventive Maintenance Procedures 1/2-IPM-CB-G-001, "Cleaning and Inspection Instrument Racks," are used to remove any accumulated dust and dirt from the cabinets, and to visually inspect the SSPS cabinet terminal screws and mounting hardware. However, cleaning and inspection of the SSPS circuit cards and relays are not discussed or mentioned in formalized procedures.

This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 52

Replaces a UFSAR reference to Chapter 8 of the UFSAR with a more relevant reference to Chapter 3 of the UFSAR.

The UFSAR description related to IEEE 334 is incorrect. IEEE 334-71 is a guide for type testing of continuous duty Class I motors installed inside containment. UFSAR Chapter 8 contains no general discussions in relations to IEEE 334-71. However, UFSAR Section 3.11.2.2 discusses the inside recirculation spray pumps in relationship to compliance with IEEE 334-71. No indications could be found that the original FSAR contained any discussions in Chapter 8 about IEEE 334-71. It appears that Chapter 3 has the only relevant discussions on larger scale motors installed in the containment, subject to the IEEE 334-71 standard. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 53
Replaces an ambiguous UFSAR statement about the scope of North Anna's response time testing program and commitment.

The UFSAR description of North Anna's response time testing commitment requires additional clarification. Even though the implementation of the commitment to response time testing will remain the same, the current wording does not sufficiently describe the scope of response time testing. Current wording is insufficient to express the scope of parameters that must be included in the test program. The current descriptions fails to affirm the overall scope of the testing program by implying that other "response times" could be included in the program. This misses the original point of this commitment by implying that other response times may be commitments without a defined bases for those commitments. This ambiguity makes unclear the definite bases of the Technical Specifications. The addition of the phrase "need to be" will affirm the stated scope of the current test program (bases of Technical Specifications and the parameters currently defined by the TRM and originally specified by the Technical Specifications and originally affirmed by the 6/76 NRC SER). This added phrase will continue to limit North Anna's commitment to "only those response times used in the accident analysis ... need to be ... in the test program." This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 54
Replaces the description associated with the safety injection changeover logic and the "low-low" RWST level terminology.

The UFSAR descriptions of the safety injection auto changeover logic and the RWST low-low level terminology are unclear. Section 7.3.2.10 describes and analyses the logic and signals associated with the automatic changeover feature from the SI mode to the recirculation mode. Section 7.3.2.10 describes how the logic signals are developed and what RWST tank level signals are associated with the automatic switchover. Both trains A and B receive bistable signals from each of the four channels. Both trains A and B develop a two of four actuation logic. The "low-low RWST level" terminology is associated with the RWST tank level at which the recirculation mode automatic changeover sequence starts. The rewrite makes these points clearer. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 55
Replaces a vague and incorrect UFSAR description of the P-14 interlock function in relation to the closing of the feedwater discharge MOVs.

The UFSAR description of the P-14 interlock described in Table 7.3-1 is incorrect. The P-14 interlock provides a direct closure function to the Main Feed line isolation valves designated as MOV-FW-154 A, B, & C. Current wording could imply that there is a possibility that the main feedwater pump discharge valves MOVs-150 A, B, & C operate as a result of the P-14 interlock. Control drawing 11715-LSK-5-8H indicates this is not the case. It is the main feedwater line isolation valves MOVs-FW-154 A, B, & C that receive a direct input signal from the P-14 interlock and not the main feedwater pump discharge valves. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 57
Replaces incorrect annotations referencing the P-8 interlock on UFSAR Figures 7.2-2 and 7.3-2.

The UFSAR provides an incorrect reference to P-7 on Figures 7.2-2 and 7.3-2. Earlier modifications to the facility changed the NI interlock with a turbine trip from P-7 to P-8. Approved modification DCPs 88-03-1 and 88-04-2 in the 1991 time frame implemented changes to the NI interlock in accordance with approved Technical Specification Amendments 119 and 103. Modifications interlocked the turbine trip function with the P-8 settings at 30% rather than the P-7 settings at 10%. The interlock at 30% enables the possibility of fewer spurious trips during shutdowns and startups. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 58
Removes an out of date UFSAR reference to no longer used "LSK 6" annotation on Figure 7.3-4.

The UFSAR provides an out of date reference to "LSK 6" on Figure 7.3-4. "LSK 6" is a designation used on earlier editing of Figure 7.3-4. This identifier is no longer an appropriate reference annotation. Additionally, since Figure 7.3-4 is a generalized concept about signal paths, reference to Figure 7.3-5 means only that guidance is provided to the reader for the purpose of understanding the general concept of diesel sequencing. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 59

(A) Replaces the approximate time delay values noted on UFSAR Figure 7.3-5 with more exact values identified in section 8.1.1.1 of the UFSAR.

(B) Replaces incorrect annotations on UFSAR Figure 7.3-5 illustrating the charging pump interlock circuitry

(A) The emergency bus voltage time delay values described on Figure 7.3-5 disagree precisely with time delay values correctly described in Chapter 8 of the UFSAR. Section 8.3.1.1.1 describes the approximate values of the correct emergency diesel starting voltage and time delays. Values are described correctly as approximate values. Values of 2 seconds for 74% voltage and 56 seconds for 90% voltage are described. Values described on Figure 7.3-5 and in Section 8.1.1.1 should agree in both sections of the UFSAR since discussions are about the same subject. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

(B) The UFSAR Figure 7.3-5 incorrectly illustrates the current charging pump interlock circuitry. DC95-227 identifies charging pump circuit modifications intended to simplify the charging pump operation and maintenance activities. DC 95-227 prepared a UFSAR change request which was designated FN 96-017. FN 96-017 is pending final implementation and is anticipated to be part of the emergency diesel generator consolidated SAR change package. Figure 7.3-5 will be revised in conjunction with other relevant FN 96-017 UFSAR descriptions to illustrate the current trip features on the charging pump C associated with UV conditions. SAR changes on figure 7.3-5 must illustrate features on the A and C charging pumps associated with the 72% undervoltage conditions. The revised logic should illustrate charging pump C interlocks with charging pump A so that no more than one charging pump will be on one emergency bus at one time. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 60

Removes an out of date UFSAR reference to no longer used "LSK 6 and 7" annotations on Figure 7.3-8.

The UFSAR provides an out of date reference to "LSK 6" and "LSK 7" on Figure 7.3-8. "LSK 6" and "LSK 7" are designators used on earlier editing of Figure 7.3-8. These identifiers are no longer appropriate reference annotations. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 61

Removes an out of date UFSAR reference to no longer used "LSK 9" annotation on Figure 7.3-10.

The UFSAR provides an out of date reference to "LSK 9" on Figure 7.3-10. "LSK 9" is a designator used on earlier editing of Figure 7.3-10. This identifier is no longer an appropriate reference annotation. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 62
Replaces an incorrect UFSAR reference to Figure 7.3-9 with a correct reference to Figure 7.2-9.

The UFSAR provides an incorrect reference to Figure 7.3-9. An apparent typographical error referenced Figure 7.3-9 rather than a correct reference to Figure 7.2-9. Figure 7.3-9 is about Station Service undervoltage signals. Figure 7.2-9 connects properly with Figure 7.3-11 showing "Containment Isolation Phase A" conditions. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 63
(A) Replaces indication accuracy values listed in Table 7.5-1, Table 7.5-2, and Table 7.5-3.
(B) Adds an inadvertently omitted portion of the description of the purpose statement in Item 3 of Table 7.5-1.
(C) Replaces an incorrect UFSAR description of the containment pressure transmitter's signal range.
(D) Replaces an incorrect description of the control room Tavg, Delta Temperature, and Median/ Hi Tavg indicators and recorders identified in Table 7.5-3.
(E) Replaces the signal range designation for the pressurizer liquid temperature parameter as listed in Table 7.5-1 and Table 7.5-3.
(F) Replaces the title of column (5) in Table 7.5-2 and Table 7.5-3.
(G) Replaces the definition of "Indication Accuracy."

(A) Indication accuracies listed in Tables 7.5-1, 7.5-2, and 7.5-3 are out-of-date. The information in these Tables is intended to describe the amount of indication uncertainty needed for reactor safety.

The original indication accuracy determination methodology used by Westinghouse has been modified to be consistent with the current industry methodology documented in ANSI/ISA-S67.04-1982, "Setpoints for Nuclear Safety Related Instrumentation." This Standard was developed to specifically address the establishment and maintenance of setpoints for individual safety-related instrument channels. It was believed that a more thorough consideration of setpoint drift was necessary in the design, test, purchase, installation and maintenance of nuclear safety-related instrumentation. This Standard was endorsed by the NRC in R. G. 1.105, "Instrument Setpoints for Safety-Related Systems," dated 1982. Specifically, "ISA-S67.04-1982 establishes requirements acceptable to the NRC Staff for ensuring that instrument setpoints in safety related systems are initially within and remain within the technical specification limit." It is this same process (methodology) that is used for determining the uncertainty associated with protection channel indication.

Channel instrumentation uncertainty (error) is determined through the use of the Channel Statistical Allowance (CSA) methodology. The square root of the sum of the squares method is used to determine the

CSA value for channel indication. This is based on the definition documented in Virginia Power Standard STD-EEN-0304. The NRC has previously agreed with these conclusions based on their review of STD-EEN-0304, as documented in Inspection Report No. 50-338/89-10 and 50-339/89-10, North Anna 1 and 2, dated April 1989.

The following information describes the currently assessed values of indication inaccuracies associated with the parameters listed in Tables 7.5-1, 7.5-2 and 7.5-3

Table 7.5-1

Parameter 1. Tcold or Thot (measured, wide range)
The Channel Statistical Allowance for indication of this parameter is +/-1.93% of scale for a mild or normal environment and is +2.87%/-0.99% of scale for both a harsh and a post-DBE environment.

Parameter 2. Pressurizer Water Level
The Channel Statistical Allowance for indication of this parameter is +/-7.93% of scale for a mild or normal environment; -11.441%/-27.301% of scale for a harsh or DBE environment; and +2.598%/-14.428% of scale for a post-DBE environment.

Parameter 3. System Pressure
The Channel Statistical Allowance for indication of this parameter is +/-2.336% of scale for a mild or normal environment; +9.093/-9.436% of scale for a harsh or DBE environment; and +4.621/-3.836% of scale for a post-DBE environment.

Parameter 8. Inadequate Core Cooling Monitor
No Channel Statistical Allowance calculation specifically for the plasma display indication of ICCM parameters is required. However, the following information is accessible:

1. The CSA for RCS Wide Range Tcold and Thot input to ICCM is +/-2.36% of scale for a mild or normal environment and +3.30/-1.42% of scale for a harsh or DBE environment.

2. The CSA for RCS Wide Range pressure input to ICCM is +/-1.54% of scale for a mild or normal environment and +8.281/-8.624% for a harsh or DBE environment.

3. As given in the ICCM calibration procedure, the acceptable error for the RVLIS plasma display is +/-3.00% of level for all three level scales.

Parameter 9. Pressurizer Liquid Temperature
No Channel Statistical Allowance calculation specifically for the Pressurizer Liquid temperature indication is required. However, the following information is accessible:

1. As given in the calibration procedure, the acceptable error for the Control Board indicator, Westinghouse type VX-252, is +/-1.5% of span.

2. As given in both the calibration procedure and the loop diagram, the indicated span of this parameter is 100 to 700 degrees F.

Table 7.5-2

Parameter 1. Containment Pressure
The Channel Statistical Allowance for indication of this parameter is +/-2.323% of scale for mild or normal environment, harsh or DBE environment, and a post-DBE environment.

Parameter 6. Pressurizer Water Level

The Channel Statistical Allowance for indication of this parameter is +/-7.93% of scale for a mild or normal environment, -11.441%/-27.301% of scale for a harsh or DBE environment, and +2.598%/-14.428% of scale for a post-DBE environment.

Parameter 8. Inadequate Core Cooling Monitor
No Channel Statistical Allowance calculation specifically for the plasma display indication of ICCM parameters is required. However, the following information is accessible:

1. The CSA for RCS Wide Range Tcold and Thot input to ICCM is +/-2.36% of scale for a mild or normal environment and +3.30/-1.42% of scale for a harsh or DBE environment.

2. The CSA for RCS Wide Range pressure input to ICCM is +/-1.54% of scale for a mild or normal environment and +8.281/-8.624% for a harsh or DBE environment.

3. As given in the ICCM calibration procedure, the acceptable error for the RVLIS plasma display is +/-3.00% of level for all three level scales.

Table 7.5-3

Parameter 1. Tavg (measured)
The Channel Statistical Allowance for indication of this parameter is +/-3.64% of scale for a mild or normal environment.

Parameter 2. DT (measured)
The Channel Statistical Allowance for indication of this parameter is +/-3.47% of scale for a mild or normal environment.

Parameter 2a. Tcold or Thot (measured, wide range)
The Channel Statistical Allowance for indication of this parameter is +/-1.93% of scale for a mild or normal environment and is +2.87%/-0.99% of scale for both a harsh and a post-DBE environment.

Parameter 3. Overpower DT Setpoint
The Channel Statistical Allowance for indication of this parameter is +/-3.77% of scale for a mild or normal environment.

Parameter 4. Overtemperature DT Setpoint
The Channel Statistical Allowance for indication of this parameter at normal or mild conditions is +/-4.17% of scale with NO F(dI) offset, +/-5.78% of scale with a positive F(dI) offset, and +/-5.34% of scale with a negative F(dI) offset.

Parameter 5. Pressurizer Pressure
The Channel Statistical Allowance for indication of this parameter is +/-2.586% of scale for a mild or normal environment. This is equivalent to +/-20.69%.

Parameter 6. Pressurizer Level
The Channel Statistical Allowance for indication of this parameter is +/-7.93% of scale for a mild or normal environment.

Parameter 7. Primary Coolant Flow
The Channel Statistical Allowance for indication of this parameter at normal or mild conditions is +/-2.37% of scale. For Rosemont Transmitters and +/-2.54% of scale for Foxboro transmitters.

Parameter 8. Reactor Coolant Pump Amperes
No Channel Statistical Allowance calculation specifically for the reactor coolant pump ampere indication is required.

Parameter 9. System pressure wide range.
The Channel Statistical Allowance for indication of this parameter is +/-2.336% of scale for a mild or normal environment.

Parameter 10. Pressurizer Liquid Temperature.
No Channel Statistical Allowance calculation specifically for the pressurizer liquid temperature indication is required. However, the following information is accessible:

1. As given in the calibration procedure, the acceptable error for the Control Board indicator, Westinghouse type VX-252, is +/-1.5% of span.

2. As given in both the calibration procedure and the loop diagram, the indicated span of this parameter is 100 to 700 degrees F.

Parameter 2. Auctioneered T average
No Channel Statistical Allowance calculation specifically for the median/Hi Select T avg. temperature indication is required. However, the following information is accessible:

1. As given in the calibration procedure, the acceptable error for the Control Board indicator, Westinghouse type VX-252, is +/-1.5% of span.

2. The circuit no longer operates via an auctioneer: it has been changed to a median/Hi Select circuit.

Parameter Containment Pressure
The Channel Statistical Allowance for indication of this parameter is +/-2.323% of scale for mild or normal environment, harsh or DBE environment, and a post-DBE environment.

Since this change has been evaluated and continues to meet design and licensing bases requirements, it does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

(B) The UFSAR contains an omission of previously correct information in Table 7.5-1. Table 7.5-1 provides information about the purpose of measuring particular parameters. Table 7.5-1, Item 3, provides information about measuring the system pressure parameter. Some Item 3 information about the purpose of this parameter was inadvertently omitted during the administrative handling of Revision 23 to the UFSAR. When Revision 23 was incorporated into the UFSAR an administrative error in publishing page 7.5-5 deleted a portion of the purpose statement. Correction of this omission will be to complete the statement as it was correctly reported prior to Revision 23. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

(C) The UFSAR lacks sufficient description associated with the range of the containment pressure instrumentation. Section 7.3.12, Tables 7.5-1, -2, and -3, incorrectly identifies the range of the containment pressure transmitters. The correct range of the pressure transmitters is 0 to 65 psia. The SAR has described an incorrect range of the transmitters from its earliest editions. Instrument Loop Diagram P-LM-100A illustrates the correct containment pressure transmitter instrument range. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the

UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

(D) The UFSAR contains an incorrect description of the Tavg, Delta Temperature, and Median Hi/Tavg control room indicators. Table 7.5-3 lists control indicators and recorders associated with various parameters available to the operator during normal operation. Design Change 89-40-1 replaced the RTD bypass manifolds associated with the measurement of the Reactor Coolant System temperature. The design change proposed a UFSAR update; however, corrections associated with Table 7.5-3 were not identified. Corrections to Table 7.5-3 must indicate that there is one Tavg, Delta Temperature, and Median Hi/Tavg correctly associated with each process loop. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

(E) The designated range for the Pressurizer Liquid Temperature parameter is incorrectly described on Table 7.5-1 and Table 7.5-3. Rather than a 0- to 700- degree range, this parameter is measured on a 100- to 700- degree Fahrenheit range. Instrument Calibration Procedure 1-ICP-RC-T-1453-2 designates the calibration range of the Pressurizer Liquid Temperature device as 100- to 700- degrees Fahrenheit. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

(F) The title for column (5) in Table 7.5-2 is inconsistent with the similar column in Table 7.5-1 and Table 7.5-3. Table 7.5-1, Table 7.5-2 and Table 7.5-3 are companion tables. These tables provide the "available indicated accuracies" for parameters that are available during certain plant conditions. For both consistency and clarity, all three tables should have the same column (5) title. Additionally, common source information, CSA calculations have been used for identical parameters in Tables 7.5-1, -2 and -3. The column heading (5) should read "Available Indicated Accuracy." Since this change has been evaluated and continues to meet design and licensing bases requirements, it does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

(G) The UFSAR provides an original definition of "Indication Accuracy" that remains applicable except that it does not incorporate an adequate reference to the current instrument accuracy terminology. The current method of accuracy determinations relies on Engineering Standard EEN-0304 for the appropriate calculation of instrument uncertainties. The definition of the UFSAR term "Indication Accuracy" is expanded to make clear that the calculations by current methods have equivalent results to the defined "tolerance band" associated with the UFSAR terminology. Current methods of accuracy determination continue to produce accuracy values that support the UFSAR basis. Current accuracy determinations use unique calculation terminology, e.g. "Channel Statistical Allowance" (CSA) that needs to be described in relationship to the UFSAR's basic assumptions. The revised definition of "Indication Accuracy" makes clear that the same tolerance band assumed by the UFSAR and its accident analysis conclusions is the equivalent of the values produced by the STD-EEN-0304 methodology and its defined terms. Since this change has been evaluated and continues to meet design and licensing bases requirements, it does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Change Item Sub # 64

The UFSAR terminology associated with the auxiliary shutdown panel charging flow auto/manual control station is inadequate. UFSAR Change Request Package No. FN 92-046 proposes a correction to the UFSAR terminology associated with the charging flow auto/manual control station. This device is actually a manual setpoint station rather than an auto/manual device as currently described. Additionally, a further change in UFSAR terminology was noted in relation to the auxiliary shutdown panel. The No. 2 auxiliary feed water pump is the steam turbine driven pump. Rather than describe the control device that operates this pump as a start-stop control switch, a more descriptive term would be to describe the pump's control switches as "steam supply valve control switches."

Changes associated with FN 92-46 are incorporated into the current package FN 98-025 in order to complete this earlier proposal. This change is considered a correction to achieve consistency throughout the UFSAR and between plant as-built conditions and the UFSAR and does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility of a new or different kind of accident or malfunction of equipment important to safety created. There are no changes to the condition or performance of equipment or system used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specifications.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built condition of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. The proposed changes do not impact the condition or performance of these structures, systems, or components. Consequences of analyzed events are the result of the plant's being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems, and components; the parameters within which the plant is operated; and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition of performance of structures, systems, or components relied upon for accident analysis assumptions.

Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 1- CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined to not represent an unreviewed safety question.

99-SE-OT-08

Description
North Anna UFSAR Change Request No. FN 99-002
UFSAR Change Request No. FN 99-002 contains a list of changes, some of which are editorial in nature, that need to be corrected or clarified in the UFSAR sections that discuss North Anna's emergency power system. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's emergency power system.

Summary

The following editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any emergency power system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub # 1
Identify sections of the UFSAR that are historical. Section 1.3 contains system design comparison information between North Anna, Surry, Beaver Valley, and Maine Yankee power stations. This information was provided to the NRC in the FSAR during the licensing phase for North Anna. The system comparison information between stations is not intended to be maintained up to date. This section will therefore be identified as containing historical information. These changes are enhancements provided as part of the UFSAR Improvement Project.

Change Item Sub # 3
Reword the description of the standby emergency ac power source. The phrase "standby or emergency ac power source" when referencing the emergency diesel generators is redundant. The emergency diesel generators are the standby emergency ac power source. While the statement is technically correct as written, rewording the statement will improve its readability. This editorial change does not affect any technical aspects of the system but does remove ambiguity.

Change Item Sub # 4
Make administrative changes to the list of reference drawings by adding Unit 2 drawings and adding station identifiers to the references. As part of the effort to improve the UFSAR and assist in the location of drawings, the list of reference drawings is being updated to include Unit 2 drawings. As stated in the UFSAR, the list of station drawings is provided for information only. The referenced drawings are not considered part of the UFSAR and the list is not intended to be a complete listing of all drawings referenced in the applicable sections of the UFSAR. While this change is being made to all sections of the UFSAR, only the lists of reference drawings associated with the emergency power system are being updated by this change package.

Change Item Sub # 8
Remove the reference to a specific UFSAR page number. As paragraphs are added and removed from the UFSAR, the information contained on a specific page changes. The information being referenced in this statement is on page 8.3-9 as of the current UFSAR revision. Since the information being referenced is in the same UFSAR section, the page reference is being removed instead of being updated. Eliminating this reference will eliminate similar problems in the future.

Change Item Sub # 9
Delete the lead in sentence "The bus ties operate as follows:". The statement is a lead in to a discussion of bus tie operation. The statement adds no value and should be removed. This editorial change does not affect any technical aspects of the discussion and does not hinder the flow of the text.

Change Item Sub # 11

Identify that the description of the Quality Assurance Program during the construction and preoperational phases is located in Chapter 17 of the FSAR and not the UFSAR. The descriptions of the Quality Assurance Program during the construction phase were originally contained in FSAR Section 17.1. The descriptions of the preoperational phase were contained in FSAR Section 17.2. These sections have been removed from the UFSAR and Section 17.2 has been replaced with the NRC-approved Operational Quality Assurance Program. To preserve the reference to the construction and preoperational programs, the statements in the UFSAR will specify that they are described in the original FSAR.

Summary:
The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, or a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.
Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the basis for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub #2
Enhance the description of the power sources for the auxiliary monitoring panels and correct typographical errors. The existing statements do not adequately describe the power sources for the various instruments on the auxiliary monitoring panels. As implemented by Design Change 84-06, on panel 1-EI-CB-203, the steam generator wide range level and the reactor coolant system cold leg temperatures for each unit are powered from the opposite unit. However, the excore neutron flux indications can be powered from either unit. The typographical changes include corrections to the mark numbers for the panels. These changes will improve the readability of the section and will clarify the power sources for the instrumentation on auxiliary monitoring panels 2-EI-CB-97A and 1-EI-CB-203. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve enhancing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in

the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 5
Change the identified current rating on the emergency buses from 3000A to 1200A. The ratings on the emergency buses are 1200 amps. The 3000 amp rating in section 8.3.1.1.1 is identified in the original FSAR and has never been corrected. The 1200 amp rating for the emergency buses is documented in specification NAS-0046 and supported by UFSAR Table 1.3-11 and FSAR Table 1.3.1.4.2-1. Electrical drawings 11715-FE-1D and 12050-FE-1D also show that the emergency bus feeder breakers are rated for 1200 amps. In addition, the General Design Criteria 17 analysis submitted to the NRC on February 26, 1982 states that the emergency bus feeder breakers are rated for 1200 amps. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since the station load list calculation EE-0025 also identifies the rating for the emergency buses as 1200 amps, no analyses or setpoints are affected and therefore, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 6
Revise the description of the loads on the H and J buses to indicate that not all loads are redundant. Section 8.3.1.1.1 of the UFSAR currently states that the loads on the H and J buses are redundant. The paragraph in question is describing safety related loads that are used for accident mitigation, however, the statement can be interpreted to mean that all loads on the H bus have redundant counterparts on the J bus. While most of the loads are redundant, there are loads that are powered from the emergency buses that are not redundant such as the auxiliary service water pump, 1-SW-P-4, which is powered only from the H bus. Section 15.4 of the UFSAR specifically identifies radiation monitors that are powered from emergency power but are not redundant, such as the fuel-handling crane area monitor. Rewording this paragraph will remove ambiguity as to the redundancy of the loads and will improve its readability. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve enhancing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 7
Revise the description of the preferred power source for the H bus. The description of the power source is incomplete. The current statement does not adequately describe the breaker arrangement or the trips associated with each. This change will enhance the description of the system as installed. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve enhancing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 10
Revise the statements concerning the adequacy of the preferred power source for unit startup. The existing statement currently indicates that the preferred power source is adequate to startup one unit provided that load shed is in effect for the operating unit. Prior to the installation of the generator breaker (DC 80-S45), load shed was necessary to prevent overloading the reserve station service transformers in the event both

units were transferred to the reserve station service power source. The addition of the generator breaker provided an additional source of power for Unit 1 from the switchyard following a trip. This allows the unit to continue to have its normal buses powered from its station service transformers rather than being transferred to the reserve station service transformers. With the current design, the preferred power supply is capable of providing the necessary power as described, regardless of whether or not load shed is available. Removing this statement will more adequately describe the capabilities of the preferred power source. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve enhancing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. As this change does not affect any analyses or setpoints, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:
These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined to not represent an unreviewed safety question.

99-SE-OT-10

Description
UFSAR Change Request FN-99-016
An UFSAR Change has been prepared to document the use of ASME Boiler and Pressure Vessel Code, Section III, Appendix F in evaluating isolated water filled containment penetrations that are potentially susceptible to over-pressurization during a DBA. ASME Boiler and Pressure Vessel Code, Section III, Appendix F, 1989 edition is not in the North Anna licensing basis (UFSAR). Appendix F is being used to provide a more detailed industry accepted method to demonstrate acceptability of existing piping.

Summary
NRC Generic Letter 96-06: "Assurance of Equipment Operability and Containment Integrity During Design Basis Accident Conditions" was issued in September 30, 1996 to notify Virginia Power about safety significant issues that could affect containment integrity and equipment operability during design basis accident conditions. As a part of the actions associated with the NRC Generic Letter 96-06 (Ref. 2), it was considered necessary to perform analyses to provide assurance of containment piping penetration integrity during design basis accident conditions. Specifically, it was considered necessary to analyze and establish that thermally induced over-pressurization of isolated water-filled piping sections in the containment boundary could not jeopardize the ability of the accident mitigating systems to perform their safety functions and could not lead to a breach of containment integrity.

Piping susceptibility to thermal over-pressurization following a DBA was not specifically evaluated prior to the issue of NRC GL 96-06. It should be noted that no specific criteria exist in the North Anna design basis or original piping code for evaluating isolated pipe segments and valves under faulted conditions. Initially, the industry response was that the stress in the pipe developed during the event would be accounted for within the conservatism within the original piping code.

As a part of the response to GL 96-06, the susceptible piping sections were evaluated. Many sections were not susceptible to over-pressurization because of their configurations or the operating conditions during the DBA. A detailed thermal analysis of the susceptible sections was performed to determine the extent of over-pressurization. An evaluation to establish structural integrity was not considered necessary for sections subjected to 1.2 times the design pressure during the DBA. However, since there is no criteria in the North Anna UFSAR for evaluation of isolated piping sections and valves during a faulted event, Virginia Power evaluated the potentially susceptible containment penetrations using the ASME Boiler and Pressure Vessel Code, Section III, Appendix F 1989 edition, "Rules for Evaluation of Service Loadings with Level D service, (Ref. 4). The use of ASME Section III, Appendix F was offered by the NRC (Ref. 1 & 5) as a means to evaluate potentially susceptible containment piping penetrations. The summary of the Appendix F analysis report documented (Ref. 3):

- Pressure determination of pipe takes credit of a limited amount of strain in the pipe at equilibrium state
- Detailed evaluation of piping for verification of structural integrity was not considered necessary when the faulted pressure was less than 1.2 times the design pressure
- Results of the analysis and Code Compliance based upon the ASME Boiler and Pressure Vessel Code, Section III, Appendix-F show that the structural integrity of the Containment penetration piping and associated valves will be maintained when subjected to thermally induced over pressurization during postulated Design-Basis Accident conditions (LOCA / MSLB). Adequate margin exists between applied stresses and the Appendix F allowable stresses.
- Adequate technical basis exists to conclude that there are no Safety Significant issues that could affect Containment Integrity and equipment operability during design basis accident conditions. Thus the results provide assurance of equipment operability and Containment Integrity during Design-Basis accident conditions to alleviate concerns raised in NRC Generic letter 96-06.

Conclusions
The UFSAR change does not constitute an unreviewed safety question because:

1. ASME Boiler and Pressure Vessel Code, Section III, Appendix F 1989 edition was offered by the NRC (ref. 1&5) to facilitate Virginia Power in performing a more detailed evaluation of the existing piping and valve design during faulted conditions to verify design adequacy.

2. The analysis performed determined that no increase in the probability of occurrence or consequence of an accident or malfunction of equipment will result from the postulated over-pressurization of isolated water filled containment penetrations during a DBA.

3. The analysis performed determined that the UFSAR change does not create the possibility of an accident or malfunction of equipment of a different type than any which has already been evaluated previously in the Safety Analysis Report.

4. The margin of safety as defined in the basis of Technical Specifications is not reduced by the UFSAR change.

As committed to in reference (1), Virginia Power will submit to the NRC the evaluation of design adequacy using the methodology of ASME Section III, Appendix F, 1989 edition for the evaluation of this specific faulted event. A revision to the UFSAR will be implemented upon NRC close out of GL 96-06 (CTS # developed for NRC correspondence serial # 99-134).

99-SE-OT-11

Description

UFSAR Change Request: FN 99-015

In Section 6.4.1.3.3, the passage, "the following potentially hazardous chemicals are stored on the plant site in a quantity greater than 100 lb," should include additional chemicals which apply to this statement. The passage, "the evaluations for carbon dioxide, nitrogen, sulfuric acid, acetone,...are based on the equations in NUREG-0570...," should include new chemicals which were evaluated using this method. Also, all references to morpholine should be removed. This pH control solution is no longer used at NAPS.

Table 6.4-1, Chemical Storage and Control Room Habitability Evaluations, requires an update of the quantity, location, distance from the Control Room air intake, type of release, maximum Control Room concentration, and toxicity limit for all chemicals stored in quantities over 100 lbs.

A note should be added to Table 2.2-3 that states, "related material listed in Table 6.4-1."

Summary

Background

Criterion 19 of 10CFR50, Appendix A, "Control Room," requires that the Control Room remain habitable during normal and accident conditions. Due to changes found in the chemical storage configuration at NAPS, questions were raised about Control Room habitability following the release of various chemicals (DR N-95-890). As a result, Engineering performed an evaluation of the previous Control Room habitability information.

The evaluation considered the following areas for each chemical addressed:

- Quantity, toxicity, and state in the plant.
- Chemical transport into the MCR via the emergency air intakes.
- Worst-case concentration level in the MCR.

Calculation ME-0567 was initiated to determine if any chemicals pose a threat to Control Room habitability. The calculation showed that all chemicals would have a Control Room concentration less than their toxicity limit in the event of a spill. The evaluation concluded that no chemical stored on site could adversely affect Control Room personnel following a release.

Major Issues Concerned

Probability or Consequences of Malfunctions - No modifications are being made to plant systems and their operation. The evaluated condition has no impact on events or mechanisms that could initiate the accidents listed in the SAR. There are also no physical changes to plant systems and components that perform accident mitigation functions. An accident of a different type is not created as a result of this document change.

Technical Specification / Operating License – The Technical Specification sections relevant to Control Room Habitability are:

- Plant Systems, Control Room Emergency Habitability System Section 3.7.7.1, LCO and 4.7.7.1, Surveillance Requirements
- Plant Systems, Bases, Control Room Emergency Habitability System Sections 3/4.7.7

The Technical Specifications are not affected in any way by this change. The Mechanical Engineering evaluation and corresponding UFSAR change document the safety of Control Room habitability with the updated chemical storage configuration.

Safe Shutdown Capability – The SE and corresponding UFSAR change are performed to ensure the safety of the plant in its present chemical storage configuration. Because there is no physical modification to the plant operating systems and components associated with this change, there is no impact on the station's ability to achieve and maintain safe shutdown in the event of a fire. In addition, operation from the Auxiliary Shutdown Panel will not be adversely affected.

Environmental Impact – Mechanical Engineering determined the plant to be safe with respect to the current chemical storage configuration. Therefore, there will be no impact on the environment or the FES. Since no changes are being made to the plant operating systems or components, no changes in power level or effluents are expected. No change to the Environmental Protection Plan is required.

99-SE-OT-12

Description

North Anna UFSAR Change Request No. FN 98-031

UFSAR Change Request No. FN 98-031 contains a list of changes, some of which are editorial in nature, that need to be corrected or clarified in the UFSAR sections that discuss North Anna's main steam system. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's main steam system.

Summary

The following editorial changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any main steam system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

#2: Change "component" to plural, for readability.

#4: The provisions for partial-stroke testing of the MSTVs were removed under EWR 89-126. UFSAR Section 10.3.4 was updated at that time, but Section 7.3.1.3.5.4 was apparently overlooked. The partial-stroke test is not a Tech Spec requirement and was stopped early in plant life to preclude reactor trip/safety injection due to inadvertent MSTV closure during the test. This change has been evaluated by approved safety evaluation 90-SE-MOD-120.

#7: Discussion of the EMERG-CLOSE switches is moved into the previous paragraph, in order to delete the second paragraph, which is otherwise redundant. No changes to technical content made.

#8: Not used.

#9: DCP 89-40 (Unit 1) and 89-41 (Unit 2) removed the RTD bypass manifolds and replaced the auctioneered high Tavg control program with a Tavg median select program. The resultant UFSAR changes were evaluated in safety evaluation 91-SE-OT-71. This change makes these statements regarding Tavg consistent with changes made by that DCP and safety evaluation, since they were evidently overlooked at that time, and ensures consistent terminology use of "median Tavg" through out the UFSAR.

#12: This clarification that the main steam safety valves meet the functional requirements of the code removes ambiguity from the statement without changing the intent.

#20: Convert discussion of construction testing of MS valves to historical format.

#24: This corrects omissions in the figure to make the UFSAR accurate with respect to plant configuration. The current figure does not show MS supply to high-pressure turbines.

#25: This corrects transcription error in disk material for NRV figure. The vendor's list of materials for the MS NRV shows that the appropriate specification is ASTM A182. Further, USAS B31.1.0-1967 shows that A192 is for carbon steel tubing, which is inappropriate. A182 is shown for ferritic alloy and austenitic stainless forgings, which is appropriate for the NRV disk.

#26: The Unit 2 prints reference for the auxiliary steam system is added for completeness.

#27: Change "main steam on extraction steam" to "main steam or extraction steam."

#29: Reduce detail in the value for full flow steam flow as information redundant to Figure 10.1-1.

Summary:

The above editorial changes are within the current design and licensing basis of the facility. These changes neither affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

#1: Change the vibration amplitude in the steam generator tubes from a numerical value to "acceptably small," which is consistent with WNEP-9206/9425, Rev. 0, "Model 51F Repaired Steam Generator Stress Report, Flow Induced Vibration and Tube Wear/Corrosion Evaluation, VEPCO, North Anna Power Station Unit 1/2." The current statement in the UFSAR was added after the Steam Generator Repair Project (SGRP) and was taken from WNEP-9106, Vol. 7, Rev. 0, "Model 51F Repaired Steam Generator Stress Report, Tube Analysis, VEPCO, North Anna Power Station Unit 1." WNEP-9106 is a report with a more specific purpose, that was an input to WNEP-9206/9425, which is the overall evaluation of the testing performed. It is more appropriate to include the conclusion statement, that the vibration amplitude was found to be small enough to be acceptable. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No analyses are affected by this change, subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

#3: This change corrects descriptions of plant components, line sizes and terminology. The description of the TD AFW steam supply line is revised for accuracy to indicate that it is reduced to a 3-inch line. This reduction is an important distinction, to demonstrate that a break in this line is bounded by the discussion of a break in the decay heat release line in Section 15.2.13.3. Several terminology corrections are made without changing the content of this section - "decay relief" to "decay release," "connection" to "riser." The 1-inch sample line is revised for completeness to indicate there are several test connections. These connections still meet the requirements for containment integrity, as each is isolated by two valves. The condensate drain line is added to this list for completion of the discussion. The drain line also meets the requirements for containment isolation, because the trip valves in that line receive containment isolation signals. The phrase "outside containment" is moved to the introduction for the list, because each item in the list is clearly outside the containment wall. Since any impact on the performance of the equipment in the MSVH is bounded by a LOCA or MSLB in containment, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. Because all these lines are isolated from containment by the same methods previously reviewed and approved to meet the requirements of containment isolation, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

#5: The change to the third item in the list is a clarification, not a change in the station design. The CLOSE pushbutton only sends a signal to the affected MSTV; therefore, in order to close all three valves, one CLOSE pushbutton must be depressed for each MSTV. The CLOSE pushbuttons for each train are next to each other for all three MSTVs. The three CLOSE pushbuttons (one for each valve) need not be depressed simultaneously to generate the close signals for the valves, and due to the proximity of the controls, no appreciable difference in response time results from depressing three CLOSE pushbuttons instead of one. Suitable redundancy of controls is provided to ensure isolation of the appropriate main steam lines when required. This design is appropriate, because this pushbutton is the only method by which the operator can isolate only the affected main steam line, as in the emergency operating procedure 1-E-3, for a steam generator tube rupture, to enhance effective pressure and cooldown control. The interlocks as described in this change are consistent with the accident analyses.

In the fourth item, requiring the MSTV control switch to be depressed for MSTV closure is acceptable to prevent inadvertent actuation. This control switch was installed for Appendix R concerns, and is located on the benchboard, close to the bottom rail. This design is appropriate because it requires two motions to achieve MSTV closure, to avoid inadvertent actuation. Inadvertent actuation of three main steam trip valves would impose a substantial transient on the plant, and on the reactor. Installation of a switch that requires a turn-and-push mechanism incorporates human factors as well as reactor safety considerations.

Since this design is consistent with the assumptions in the accident analyses, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. The MSTV control interlocks have continued to meet redundancy and single failure criteria; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

#6: Present UFSAR wording states that the main-steam isolation trip valve must be fully closed to allow the solenoids to be sealed in the energized position. The seal-in of the SOVs for the main steam isolation trip valves has always been independent of main steam isolation trip valve position. This seal-in upon signal receipt is an appropriate design, because there is no time delay for valve closure before seal-in and assures the actions of even a momentary signal will be completed. Since the proposed changes do not adversely affect MSTV closure time, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since there is no impact on the MSTV response to a valid closure signal, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No accident analyses are affected by this change, subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

#10: This change updates the UFSAR to be consistent with the current heat balance for each unit. Because there are differences between the units, and because the original FSAR had representations that applied to both units, this change will put both diagrams in the UFSAR. The controlled drawing revision for Unit 2 was the result of the modifications to the high-capacity steam generator blowdown system, made by DCP 94-015. These modifications increased the possible blowdown flow rate, and resulting reactor heat removal. 95-SE-MOD-44, FC-5 evaluates that design change and the associated UFSAR update. That DCP generated an update to an Engineering-approved calculation, ME-0277, Rev 2, which was the source of the change to the approved station controlled drawing, 12050-HM-13Q. Because the changes to the station have already been evaluated, and the calculation has been reviewed and approved under the appropriate program, this change to the Unit 2 drawing should be reflected appropriately in the UFSAR, in order to reflect the current design basis. Since the proposed change does not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

#11: The gland steam condenser drains to the main condenser or to the turbine sump, not to liquid waste. This statement, if corrected, would be redundant to other correct information in the UFSAR, and would not add value to the discussion of GS in this section. In chapter 11, the radiological consequences of a release through GS are evaluated, and a value for the non-condensable gases released can be found in Table 11.1-15. An updated value for the condensate reclaimed from the condenser is part of the heat balance in Figure 10.1-1. Deletion of this redundant information is not a change to the technical content of the UFSAR. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

#13: This safety evaluation provides the basis for change package FN 92-162, which was implemented in a previous UFSAR revision without a 50.59 review. When the error was discovered, the package was "reopened" as FN 92-162A to develop sufficient basis for the changes made. Many of the changes in that change package were editorial in nature – things such as updating terminology to that commonly in use at the station. Those changes did not alter the technical content of the information in the UFSAR. However, a subset of these changes require closer examination, and in one case, a basis for the change could not be supported, and the change is reverted back to its original form by package FN 98-031. These subitems can be identified by referring to markups from the original change package, FN 92-162, attached as part of the references.

13A: This item was in the design bases for the main steam line flow restrictor/flow element. Under the first item, instead of "reducing the steam flow rate" the words were changed to "limit the steam flow rate," in order to delete the phrase regarding "limiting accident flow rate" from the fourth design basis in that list. This was a clarification of the description of the restrictor function. This change is editorial, and not a change to the intent of the statements in the UFSAR.

13B: This deleted a statement that identified which UFSAR section discusses the steam generator blowdown system. Although it was a true statement, it was not relevant to the paragraph about the main steam flow-limiting device. Deleting the pointer to an unrelated UFSAR section did not alter the technical information in the paragraph, therefore, this change was also editorial in nature.

13C: This involved changing a discussion of safety valve chattering to state the SG PORV has a lower setpoint to prevent the safety valve opening. The change is a more accurate description of the purpose of the SG PORVs, based on WCAP 7451, "Steam Systems Design Manual," Rev 1. PORVs are preferred for steam relief over the safety valves, because block valves are provided to isolate the SG PORVs in the event they do not close completely. Chattering is prevented by staggering setpoints on safety valves and the PORV on an individual steam line. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

13D: This change removed reference to use of the decay heat release valve for operator training. Use of the decay heat release valve for operator license training was necessary when the station first became operational, due to the lack of a simulator. Operators now receive license training on the simulator. This is preferable, from a reactor safety standpoint, to avoid unnecessary transients on the plant. Because this change reduces the occasions to create a transient in the station, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

13E: The deleted statement regarding the stop-check valve handwheel torque was part of the original FSAR, as an answer to staff question number S10.22. The NRC concern that prompted the question was that a potential break in the decay heat release line could result in an unisolable blowdown of all three steam generators. In Supplement 2 to the SER, the NRC required the DHRV to remain isolated, to mitigate this concern. In Supplement 4 to the SER, the NRC accepted the design of the main steam system, with the subsequent analyses performed, to show that the core would be protected, even if a break in this line resulted in a slow unisolable blowdown of all three steam generators. Because the concern that prompted this question was satisfactorily addressed without relying on the handwheel torque, this information has been superceded in the licensing basis, and need no longer be maintained in the UFSAR. Since the proposed change does not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

13F: The deleted statement regarding closure of MSTVs without backpressure was part of the original FSAR, in answer to staff comment 10.2. Deletion of this sentence was inappropriate. This information was provided to the NRC as part of the original FSAR submittals, in answer to staff question S10.2, and is part of our licensing basis. Under current guidelines, this information must be maintained in the UFSAR. This change request does not comply with those guidelines, and is restored to its original form by this change package.

13G: This change added specificity to the UFSAR section pointers and it makes the discussion about a break in the decay heat release line more accurate, because the UFSAR does contain an applicable analysis. The reference pointer to that analysis is now provided, and ensures more information is available to the reader. This change did not alter the overall technical content of the UFSAR, because the analysis discussions in Chapter 15 were not changed.

Since these changes, as amended by FN 98-031, do not involve physical changes to the facility, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

#14: Although the steam dumps have been evaluated to have sufficient capacity to dump 40% of the current full load steam flow to the condenser during a 50% load rejection transient, the value given in lbm/hr is not accurate for 40% of full load steam flow, because it is a pre-core uprate value. The steam dump capability to dump 40% of the uprated steam flow was evaluated as acceptable by the core uprate study done by Stone and Webster Engineering Corporation. Current maximum steam flow is available in the UFSAR on Figure 10.1-1, the Heat Balance Diagram. Because the full flow value (12.77 E6 lbm/hr) and the 40% rating of the steam dumps are both maintained in the UFSAR, the numerical value for 40% flow is redundant and can be deleted. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

#15: DCPs 90-13-1 and 93-11-2 repaired the steam generators and installed a flow restrictor integral to the steam outlet nozzle of each steam generator. Section 2.2.5 of the DCP states: "The smaller break area of the steam nozzle integral flow restrictors limits the rate at which mass and energy enter the containment." Because that flow restriction is installed upstream of the main steam line flow element, it is the flow limiter in the event of a main steam line break. The flow limiting functions that were part of the design basis for the main steam flow elements are now accomplished by the restrictor that is integral to the steam generator outlet nozzle. The modifications to the station were evaluated in DCPs 90-13-1 and 93-11-2, as discussed in 92-SE-MOD-054 Rev 4. This UFSAR change further clarifies the function and design bases of these devices. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. Because the analyses have already been updated to take credit for the installation of the flow restrictor integral to the steam outlet nozzle, no analyses are affected by this change. Subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

#16: The PORV setpoint change to 1035 psig has been evaluated in 97-SE-OT-12. The rated capacity of the PORVs comes from NAS-89-6, Specification for Main Steam Atmospheric Dump Valves, and is confirmed in the spec data sheet. This change will remove the ambiguity that the rated flow rate may apply at the valve setpoint, and restores the UFSAR to the original intent. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

#17: Inclusion of the Unit 2 drawings in the reference list is an editorial change, to provide more information to the reader. Drawing #3 is referenced only twice in section 10.3.2. Both references are discussing the location and layout of the decay heat release valve and its isolation valves. These are not shown on Reference 3 (11715-FM-1A). Reference 2 for Section 10.3.2 (11715-FM-070B) provides adequate information for these components. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

#18: This change re-wrote the description of the MSR inlet line to agree with the configuration installed by DCP 81-32. The 1" drain line was moved upstream of the FCV (so it could no longer "prevent pressurization of the tube bundle"), and new warmup lines were installed to assure operational control of MSR startup. This inserted explanation brings the UFSAR up to date with the station configuration established in DCP 81-32. Since there is no impact on the performance of any safety-related equipment, and the control of the MSRs is improved, particularly when placing them in service, any impact on station operation is bounded either by the MSLB or ATWS accident analyses. Therefore, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. Because this change does not affect the function of the MSRs, and because the construction materials and location of this modification are similar to those being replaced, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

#19: This safety evaluation provides the basis for change package FN 92-178, which was implemented in a previous UFSAR revision without a 50.59 review. When the error was discovered, the package was "reopened" as FN 92-178A to develop sufficient basis for the changes made. The first change made by that request was to alter the description of the MSTV closure time to be consistent with the description in Tech Specs, and is editorial in nature.

19A: The second change was to delete the discussions of NRV and MSTV opening times. The preceding UFSAR statement is clear that valve opening is not a safety function. In accordance with NEI 98-03, this information can be removed as excessive detail, on the basis that if this design information changed during the life of the plant, it would have no impact on the ability of the system to perform its design basis function. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. The margin of safety as defined in the basis for any technical specification is not reduced.

19B: The third change was to delete the statement regarding closure of MSTV without backpressure. Deletion of this sentence was inappropriate. This information was provided to the NRC as part of the original FSAR submittals, in answer to staff question S10.2, and is part of our licensing basis. Under current guidelines, this information must be maintained in the UFSAR, and is restored to the UFSAR by this change package.

#21: The applicable version ASME Section XI is updated to the latest approved edition at each testing interval, as required by 10 CFR 50.55A. Therefore, the 1970 edition no longer applies. The version currently in use is different between Units 1 & 2, due to the different vintage of the operating licenses. The version of ASME XI adopted as the code of record will continue to be periodically updated, as required by federal law. Since the inspections and testing will continue to be performed in accordance with the applicable code, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. Any changes to margin of safety resulting from code changes are evaluated in advance by the NRC as part of the regulatory change to 10CFR 50.55A and are therefore acceptable.

#22: The steam nozzle flow limiting devices were installed during the steam generator replacement projects and have the same design life requirements as the main steam line flow restrictors (flow elements). The safety evaluations in support of the SGRP DCPs (92-SE-MOD-054, Rev 4 for DCP 90-13-1) concluded that the replacement steam generator modifications were performed such that the components met or exceeded the integrity and the code requirements of the original equipment. These modifications included the addition of the steam nozzle flow limiting devices. This change also clarifies that intent of the statement that the flow restriction is not part of the system pressure boundary, as indicated in WCAP-7451, Rev. 1, the Westinghouse Steam Systems Design Manual. From the evaluations made in that safety evaluation, it can be concluded that the steam nozzle flow limiting devices meet the same design basis as the steam line flow element, and that no tests or inspections are required for them. Therefore, this change is acceptable. Since there is no impact on the performance of these flow limiting components that is not accounted for in the applicable design and construction codes, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment used in accident mitigation that could reduce a margin of safety as described in the basis for any technical specification.

#23: The current UFSAR wording is technically correct, because it is an example of a listing from the USAS B16.5-1968. However, the example selected does not match the rating of the steam dump valves, and could create confusion. This change will select the example from the code that matches the steam dump rating, as specified in the Westinghouse equipment spec 676270. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No analyses are affected by this change, subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

#28: The statements currently in this section of the UFSAR are misleading, particularly in the phrase, "These valves prevent blowdown of more than one steam generator for any break location." This seems to deny the possibility that a break in the decay heat release line could result in the blowdown of multiple steam generators. Such a break has been analyzed, and is discussed in Section 15.2.13.3, so that is not the intention of this statement. In the subsection that discusses a break of the DHRV line, it states that analysis is bounded by the main steam line break analysis in Section 15.4.2. This change will clarify that the MSTVs and NRVs are intended to isolate the large main steam pipes, and that the other breaks are accounted for in a different section of the UFSAR. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No analyses are affected by this change, subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-13

Description
Technical Specifications Bases Change Request #333A - Section 3/4.6.1.2 "CONTAINMENT LEAKAGE"
Changes to the Technical Specifications Bases Section 3/4.6.1.2 will eliminate the specific reference to the mass-point (Type A test) method included in ANSI/ANS 56.8-1987, and will add a discussion of performance-based testing in accordance with 10 CFR Part 50 Appendix J, Option B, and Regulatory Guide 1.163, September 1995, "Performance-Based Containment Leak Test Program." The Bases changes permit the use of other NRC staff approved integrated leak rate test methodologies.

Summary
Changes to the Technical Specifications Bases will eliminate the specific reference to the mass-point (Type A test) method included in ANSI/ANS 56.8-1987, and will include a discussion of performance-based testing in accordance with Option B to 10 CFR Part 50, Appendix J, and Regulatory Guide 1.163 dated September 1995, "Performance-Based Containment Leak Test Program." The Bases changes permit the use of other NRC staff approved integrated leak rate test methodologies (e.g., ANSI/ANS-56.8-1994, mass-point methodology or Bechtel Topical BN-TOP-1)

The use of alternative NRC approved/endorsed leakage rate test methodologies to perform the containment Type A test does not create an unreviewed safety question as described below:

- The Bases changes do not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report.

The use of other approved/endorsed test methodologies does not affect the operation of the plant or generate any new methods of operation. Therefore, the use of other testing methodologies will not impact the probability of occurrence on any previously evaluated accident.

The NRC approved/endorsed test methodologies adequately measure containment leakage to ensure that the primary containment, and those systems and components which penetrate the containment, do not exceed the allowable leakage rate values specified in the Technical Specifications and associated Bases. The allowable leakage rate is adequately determined so that the leakage assumed in the safety analyses is not exceeded and the consequence of any previously identified accident or event are not increased.

- The Bases changes do not create the possibility of an accident or malfunction of a different type than any evaluated previously in the safety analysis report.

Using other NRC approved/endorsed test methodologies does not involve any physical alteration of the plant or changes in methods of operation. These testing methodologies do not impose any new plant requirements or eliminate any existing requirements. The Bases change does not impose any new or eliminate any existing requirements. Therefore, it is concluded that no new or different kind of accident or malfunction from any previously evaluated has been created.

- The Bases changes do not result in a reduction in margin of safety as defined in the Bases for any Technical Specifications.

The Bases changes will not reduce the margin of safety since the change has no effect on any safety analyses assumptions. Using NRC approved/endorsed test methodologies provides assurance that the containment, and those systems and components which penetrate the containment, do not exceed the allowable leakage rate values specified in the Technical Specifications and Bases. Therefore, the proposed changes do not result in a reduction in a margin of safety.

99-SE-OT-14

Description

Technical Specification Change 290 - Modification of the Allowed Outage Times, and Surveillance Frequencies of the RTS/ESFAS analog instruments and interlocks (WCAP-10271 Supplements 1 and 2 and WCAP-14333).

1. Change the surveillance frequency requirement for Reactor Trip System (RTS) and Engineered Safety Features System (ESFAS) analog instruments from monthly to quarterly.
2. Increase the time allowed for a channel to be inoperable in an untripped condition from 1 hour to 72 hours.
3. Increase the time a channel in a functional group may be bypassed to perform testing to 12 hours. This bypass time applies to either an inoperable channel when testing is done in the tripped mode or to the channel in test when testing is done in the bypass mode. However, routine channel testing may only be performed in the bypassed condition in place of the tripped condition where permanent hardware is installed to enable such testing.
4. Provide for continued operation with an inoperable channel beyond the next scheduled surveillance test provided the channel is in trip and the Minimum Channels OPERABLE requirement is met.
5. Increase the Allowed Outage Time for maintenance of a channel and actuation logic to 12 hours.
6. Eliminate the two loop operation action requirements and associated Actions.
7. Numerous other changes to Required Actions, Mode Applicability, and Notes to provide consistency with Standard Technical Specifications (NUREG-1431, Rev. 1).
8. Editorial changes to make Unit 1 and Unit 2 wording consistent.

Summary

MAJOR ISSUES

The North Anna Plant Technical Specifications currently require monthly functional testing of the Reactor Trip System/ Engineered Safety Features Actuation System (RTS/ESFAS) protection circuitry. While this requirement supports verification of instrument performance, industry experience has shown the testing frequency to be excessive. References 1, 2, 3 document a Westinghouse study which recommended an increase in the surveillance intervals of the analog instruments to quarterly and the permissive interlocks to refueling, when protection setpoint drift data could be shown to remain within the assumptions of the applicable safety analyses. The NRC has approved the use of these WCAP's in licensing submittals to extend the surveillance intervals when supported by plant data.

A review of rack drift data for all of the RTS/ESFAS analog protection loops has shown drifts to be below 1% of span per calendar quarter (Reference 2). As the Virginia Power setpoint methodology generically assumes a 1% rack drift for all RTS/ ESFAS functions, this result provides the technical basis for quarterly functional testing. In WCAP-10271 and its supplements, the WOG evaluated the impact of the proposed surveillance test interval and allowed outage times and resulting change in Core Damage Frequency. The NRC staff concludes in its evaluation of the WOG evaluation that an overall upper bound increase of the core damage frequency due to the proposed surveillance test interval and allowed outage times changes is less than 6 percent for Westinghouse Pressurized Water Reactors plants. The NRC Staff also concluded that actual Core Damage Frequency increases for individual plants are expected to be substantially less than 6 percent. The NRC Staff considered this Core Damage Frequency increase to be small compared to the range of uncertainty in the core damage frequency analyses and therefore acceptable, as noted in SER's dated February 1985, February 1989 and April 1990.

The same WCAP's also evaluated increases in allowed outage times (i.e., the time required before placing a failed channel in TRIP) for analog instrument channels, as well as the time which a channel may be placed in bypass. Logic channels were likewise evaluated for lesser AOT extensions. These changes were also generically approved in the NRC SER's. For each of these changes, plant implementation is dependent upon verification that the generic basis is applicable to North Anna.

For the additional relaxations in WCAP-14333, the WOG evaluated the impact of the additional relaxation of allowed outage times and completion times, and action statements on core damage frequency. The change in core damage frequency is 2.0 percent for those plants with two out of three logic schemes that have not implemented the proposed surveillance test interval, allowed outage times, and completion times evaluated in WCAP-10271 and its supplements. This analysis calculates a significantly lower increase in core damage frequency than the WCAP-10271 analysis calculated. This can be attributed to more realistic maintenance intervals used in the current analysis and crediting the AMSAC system as an alternative method of initiating the auxiliary feedwater pumps.

The NRC performed an independent evaluation of the impact on core damage frequency and large early release fraction. The results of the staff's review indicate that the increase in core damage frequency is small (approximately 3.2%) and the large early release fraction would increase by only 4 percent for 2 out of 3 logic schemes that have not implemented the proposed surveillance test interval, allowed outage times, and completion times evaluated in WCAP-10271 and its supplements.

Accident Probability and Consequences. UFSAR Chapter 15 accident probability is not increased because the surveillance test interval has no impact upon the accident precursors. Potential accident consequences are unaffected because the assumptions of the protection setpoint analyses are maintained even with the longer test intervals, AOT's and bypass times. The RTS and ESFAS Systems including the Reactor Trip breakers will continue to be operated in the same manner. The proposed Technical Specifications change does not change the operation of a system or component described in the SAR. Therefore, the probability and consequences of any Chapter 15 accident are not increased by the change in surveillance frequency requirements. However, the decrease in surveillance frequency requirements increases the probability of an ATWS (failure of the reactor to trip when a valid trip condition exists) due to the increased unavailability of Reactor Trip and ESFAS systems, which in turn increases the overall Core Damage Frequency. This increase in system unavailability is at least partially offset by the reduced challenges to the safety systems due to inadvertent trips or actuations during testing. The overall increase in Core Damage Frequency is estimated to be less than 3.0% (Westinghouse WCAP-10271 Supplement 1 and 2) as confirmed by Brookhaven for the NRC to be less than 6.0% and subsequently *approved by the NRC* in SER's dated February 1985, February 1989, and April 30, 1990.

For the additional relaxations in WCAP-14333, the WOG evaluated the impact of the additional relaxation of allowed outage times and completion times, and action statements on core damage frequency. The change in core damage frequency is 2.0 percent for those plants with two out of three logic schemes that have not implemented the proposed surveillance test interval, allowed outage times, and completion times evaluated in WCAP-10271 and its supplements. This analysis calculates a significantly lower increase in core damage frequency than the WCAP-10271 analysis calculated. This can be attributed to more realistic maintenance intervals used in the current analysis and crediting the AMSAC system as an alternative method of initiating the auxiliary feedwater pumps.

The NRC performed an independent evaluation of the impact on core damage frequency (CDF) and large early release fraction (LERF). The results of the staff's review indicate that the increase in core damage frequency is small (approximately 3.2%) and the large early release fraction would increase by only 4 percent for 2 out of 3 logic schemes that have not implemented the proposed surveillance test interval, allowed outage times, and completion times evaluated in WCAP-10271 and its supplements

Unique Accident Probability. No hardware or procedural changes are made which generate *unique* accident risk. Thus, no new accident probability is created; the scope of the current Chapter 15 accidents remains fully bounding. All safety components, structures, and systems will be operable as assumed in the safety analysis to mitigate the consequences of the accidents identified above.

Although the surveillance frequencies and the time to place an inoperable channel in trip are changing, the RTS and ESFAS Systems, including the Reactor Trip breakers, will continue to be operated in the same manner. Therefore, no new modes of operation or accident precursors are generated by the proposed changes.

Margin of Safety Setpoint drifts over the longer surveillance intervals have been shown to be bounded by the assumptions of the existing setpoint analyses (i.e., measured quarterly drifts are much less than the assumed 1% drift between functional test intervals). Thus the margin of safety as defined in the Technical Specifications for the protection setpoints will be maintained.

For the additional relaxations in WCAP-14333, the WOG evaluated the impact of the additional relaxation of allowed outage times and completion times, and action statements on core damage frequency. The change in core damage frequency is 2.0 percent for those plants with two out of three logic schemes that have not implemented the proposed surveillance test interval, allowed outage times, and completion times evaluated in WCAP-10271 and its supplements. This analysis calculates a significantly lower increase in core damage frequency than the WCAP-10271 analysis calculated. This can be attributed to more realistic maintenance intervals used in the current analysis and crediting the AMSAC system as an alternative method of initiating the auxiliary feedwater pumps.

The NRC performed an independent evaluation of the impact on core damage frequency and large early release fraction. The results of the staff's review indicate that the increase in core damage frequency is small (approximately 3.2%) and the large early release fraction would increase by only 4 percent for 2 out of 3 logic schemes that have not implemented the proposed surveillance test interval, allowed outage times, and completion times evaluated in WCAP-10271 and its supplements.

99-SE-OT-15

Description

Technical Specification Change Request No. 366 affecting Technical Specification ¾.7.7 and the Bases Section ¾.7.7

UFSAR Change Request No. FN 98-061 affecting UFSAR Sections 6.4.1.1, 6.4.1.3.1, 15.4.1.7, 15.4.1.7.1, 15.4.1.7.2, 15.4.1.9.3, 15.4.2.1.3, 15,4.3.4, 15.4.3.4.1, 15.4.3.4.2, 15.4.3.4, 15.4.4.2.2, and Tables 15.4-6, 15.4-7, 15.4-19, 15.4-20, 15.4-11,

TRM Change No. 31.

To support a North Anna Request to increase the amount of allowable leakage from ECCS components, the offsite and control room dose consequences resulting from a LOCA have been re-evaluated. In addition, to establish a consistent basis for the North Anna dose analyses, new dose analyses for the other accidents have also been performed. As a result of these analyses, two things have changed:

1. The number of control room ventilation fans that need to be available in the event of an accident has been reduced and,
2. The amount of allowable leakage from ECCS components has been increased.

To formalize the operability and surveillance requirements of the control room emergency habitability systems, consistent with the revised control room dose calculations, the following changes to the Technical Specifications will be proposed to the NRC:

1. Change Technical Specification 3.7.7.1 to indicate that the emergency ventilation system and the bottled air pressurization system are shared with the other unit.
2. Add an applicability statement to Tech. Spec. 3.7.7.1 to indicate the Spec. is applicable during movement of irradiated fuel assemblies or during CORE ALTERATIONS.
3. Add an ACTION statement to Tech. Spec. 3.7.7.1 that would indicate that, with either the emergency ventilation system or bottled air pressurization system inoperable, suspend movement of irradiated fuel assemblies and CORE ALTERATIONS.
4. Add a statement to BASES Section ¾.7.7 to define an operable control room emergency ventilation system as follows: An OPERABLE control room ventilation system consist of a least two operable emergency filtration trains out of the four emergency filtration trains serving the combined Unit 1 and Unit 2 control room. An operable emergency filtration train shall include; an operable fan, an operable charcoal and HEPA filter, an operable charcoal filter, an operable flow path, and having normal and emergency electrical power available.

Summary

The offsite and control room dose consequences resulting from a Loss of Coolant Accident (LOCA) have been reanalyzed to evaluate a proposed increase in the amount of allowable leakage from ECCS components from 900 cc/hr to 4800 cc/hr. This analysis was performed using the LOCADOSE code with methodology consistent with the Standard Review Plan (NUREG – 0800, Revision 2). The dose consequences resulting from the following accidents were also evaluated using the LOCADOSE code to establish a consistent basis for the North Anna dose analyses:

1. Major secondary pipe rupture
2. Steam generator tube rupture
3. Locked rotor.

The current analysis of record for the Fuel Handling Accident is based on LOCADOSE and was approved by the NRC in Reference 2 and therefore was not reanalyzed at this time. Compared to the 1989 Virginia Power submittal to the NRC to address control room habitability (References 1 and 2), the revised North Anna control room habitability calculations take no credit for recirculation of the control room air during the accidents.

The dose consequences of the accident scenarios listed above were determined to meet the 10 CFR 100 limits and the limits specified in GDC-19. However, while the radiation doses meet the required design limits, the projected doses for the some of the accident control room doses, calculated under the conditions specified by the revised Technical Specifications, have increased above some the doses previously reviewed and approved by the NRC via our March, 1989 submittal. In addition some of the EAB doses have increased above those presented in the FSAR. Therefore, an unreviewed safety question exists as defined in 10 CFR 50.59 for the following reasons:

1. A change is being proposed to allowable ECCS leakage that will increase dose consequences.

99-SE-OT-16

Description

Technical Specification Change Request No. 364
Technical Requirements Manual Change Request No. 36
Changes will delete the additional stringent primary-to-secondary leak rate limits, and delete and/or relocate portions of the enhanced leakage monitoring requirements for the original steam generators that were imposed by Technical Specifications 3.4.6.3 and 3.4.6.4 when operating in Mode 1 above 50% power. These requirements were established following the Unit 1 steam generator tube rupture (SGTR) event on July 15, 1987. Changes will also add a clarification footnote for Surveillance Requirement 4.4.6.2.1.d stating that primary to secondary leakage surveillance is not required below 50% power.

Summary

The changes remove the more stringent primary-to-secondary leakage limits and enhanced leakage monitoring requirements that were imposed on the original steam generators when operating in Mode 1 above 50% power following the Unit 1 steam generator tube rupture event on July 15, 1987. Since the SGTR event, new steam generators have been installed for Units 1 and 2 with excellent performance history. As a result, these overly conservative leakage rates and enhanced monitoring requirements are considered no longer needed. The original Technical Specifications requirements to limit Reactor Coolant System operating leakage as specified in LCO 3.4.6.2, associated Action Statements, and Surveillance Requirements 4.4.6.2.1 and 4.4.6.2.2 will be retained. These original requirements are bounded by the existing UFSAR Chapter 15 accidents analyzed and do not create an unreviewed safety question. Portions of the enhanced leakage monitoring requirements for the N-16 radiation monitoring systems are being relocated to the TRM to provide an additional method to verify compliance with the Technical Specification primary-to secondary leakage limits.

Changes will also add a footnote to Surveillance Requirement 4.4.6.2.1.d stating that primary to secondary leakage surveillance is not required below 50% power. Primary to secondary leakage is measured by the performance of RCS water inventory balance in conjunction with radioisotope monitoring. The RCS water inventory balance is performed at least once every 72 hours with the reactor at steady state operating conditions. A steady state condition above 50% power comparison between the secondary concentrations and the primary radioisotope concentrations is necessary for an accurate primary to secondary leak rate determination.

The total steam generator tube leakage limit of 1gpm for all steam generators ensures that the dosage contribution from the tube leakage will be limited to a small fraction of Part 100 limits in the event of either a steam generator tube rupture or steam line break. The 1 gpm limit is consistent with the assumptions used in the analysis of these accidents. The 500 gpd leakage limit per steam generator ensures that steam generator tube integrity is maintained in the event of a main steam line rupture or under LOCA conditions.

These proposed changes eliminate the more conservative primary-to-secondary leakage rate restrictions above 50% power, and delete and/or relocate portions of the operability and surveillance requirements for the leakage monitoring instrumentation to the Technical Requirements Manual (TRM). Specifically, operation of the North Anna Power Station in accordance with the proposed Technical Specification changes and the addition of the new Section to the TRM will not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated. Eliminating the conservative primary to secondary leakage limits associated with the replaced steam generators and the deletion and/or the relocation of portions of the operability requirements for the leakage monitoring instrumentation do not change the operation on the plant. The steam generators will be operated, inspected, and maintained in the same manner. No new accident initiators are established as a result of the proposed changes. Therefore, the probability of occurrence is not increased for any accident previously evaluated.
   Removing the conservative primary to secondary leakage limits associated with the original steam generators and the operability requirements for the leakage monitoring instrumentation do

not change the operation on the plant. Although the conservative leakage limits are being deleted, the remaining leakage limits will maintain the dose rate, in the event of a tube rupture, within the analyzed limits. Therefore, there is no increase in the consequences of any accident previously analyzed,

2. Create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed changes do not affect the operation of the plant. The steam generators will be operated, inspected, and maintained in the same manner. There are no modifications to the plant or steam generators as a result of the change. No new accident or event initiators are created by the removal of the conservative primary to secondary leakage limits associated with the original steam generators and the deletion and/or relocation of the operability requirements for the leakage monitoring instrumentation. Therefore, the proposed changes do not create the possibility of any accident or malfunction of a different type.

3. Involve a significant reduction in the margin of safety as defined in the bases on any Technical Specifications. The proposed changes have no effect on any safety analyses assumptions. The remaining leakage rate limits maintain primary to secondary leakage within the accident analysis assumptions. The proposed changes only eliminate overly conservative primary to secondary leakage requirements and delete and/or relocate to the TRM the operability and surveillance requirements for the leakage monitoring systems associated with the replaced steam generators. Therefore, the proposed changes do not result in a reduction in a margin of safety.

99-SE-OT-17

Description
North Anna UFSAR Change Request No. FN 98-043
UFSAR Change Request No. FN 98-043 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss North Anna's service water. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's service water system.

Summary

The following editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any service water system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub # 1
Clarify which body of water the UFSAR is discussing in Sections 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 2A, 3.4, 8.2, 9.2, 9.4, 9.5, 10.1, 10.4, 11.2, 11.4, 11.6 and 11B. There are several names currently given in the UFSAR for the bodies of water at NAPS. The following definitions are used to clarify these bodies of water:
Service Water Reservoir: The reservoir that contains the spray arrays.
Lake Anna: When referring to the large body of water as a location landmark. Lake Anna is comprised of the North Anna Reservoir and the waste heat treatment facility.
North Anna Reservoir: The large part of Lake Anna that supplies cooling water for the station.
waste heat treatment facility: The smaller part of Lake Anna that contains the cooling lagoons. The waste heat treatment facility dissipates waste solution heat from circulating water discharge before the return of this water to the North Anna Reservoir.

Change Item Sub # 3
Change the actual value of the pump submergence in section 2.4.11.5 to 6.8 feet. UFSAR Change Request FN 92-011 was approved and implemented due to a revision of the Technical Specifications. FN 92-011 changed the submergence of the service water pumps in Table 9.2-4 but did not correct section 2.4.11.5. Actual submergence is calculated as follows: 30-day SW Reservoir level is 309 feet. Drawing from DCP-95-015 Appendix 4-6 shows the SW pump El. to be 301 feet 8 inches which is approximately 301.667 feet. Therefore the actual submergence at the minimum Service Water Reservoir is 309 feet minus 0.5 feet (initial instrument uncertainty) minus 301.667 feet = 6.83 feet rounded to 6.8 feet. This number is also given in UFSAR Table 9.2-4 and section 9.2.1.3.

Change Item Sub # 6
Clarify which pumps are being referenced in section 3.8.1.1.9 by utilizing the proper noun name from passport. Add the word "Auxiliary" to the Service water pumps. Change the name of the two service water reservoir makeup pumps to the two circulating water screenwash pumps to use their proper name. Drawing 11715-FM-6A shows the following pumps located at the intake structure:
1) Auxiliary Service Water pumps (1/2-SW-P-4)
2) Motor Driven Fire Pump (1-FP-P-1)
3) two circulating water screenwash pumps that are used to makeup to the service water reservoir (1-CW-P-2B, 2-CW-P-2A.)
Change Item Sub # 10
Change section 3A.27 and to state that the cooling water complies with Regulatory Guide 1.27 as discussed in section 9.2.5. In section 9.2.5, edit the statement to refer to Regulatory Guide 1.27, March 1974. Add reference to section 9.2.5 to the Keyword Index under Regulatory Guide 1.27. The compliance with Regulatory Guide 1.27 is discussed in section 9.2.5 and 1.3.2. TS bases section 3/4.7.5, Ultimate Heat Sink, states "The limitations on minimum water level and maximum temperature are based on providing a 30 day cooling water supply to safety related equipment without exceeding their design basis temperature

and is consistent with the recommendations of Regulatory Guide 1.27, 'Ultimate Heat Sink for Nuclear Plants', March 1974". RG 1.27 replaced Safety Guide 27.
Regulatory Guide 1.27 was derived from Safety Guide 27. TS bases, section 3/4.7.5 (original amendment dated 11/26/77) states "The limitations on minimum water level and maximum temperature are based on providing a 30 day cooling water supply to safety related equipment without exceeding their design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, Ultimate Heat Sink for Nuclear Plants, March 1974. Supplement 10 to the Safety Evaluation issued by the NRC to NAPS states that the NRC concluded that "the predicted design bases temperatures and water losses for two unit operation are reasonable and conservative, in accordance with Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants (Revision 2)." Revision 2 to Regulatory Guide 1.27 was published in January 1976. However, even though the NRC felt we were in compliance with Revision 2, NAPS committed to compliance with Revision 1 of RG 1.27 by the submittal of TS Bases 3/4.7.5. The NRC reviewed and approved TS Bases 3/4.7.5 in TS amendment 152/136 and Safety Evaluation dated December 13, 1991.

Change Item Sub # 14
Change the "period of 1 hour to 4 hours" in section 9.2.1.1 to read "period of 1 hour to 24 hours". Typographical error from the 1973 to the 1979 version of FSAR resulting in 24 hours being changed to 4 hours.

Change Item Sub # 17
Add a reference to Reference Drawing 17 in section 9.2.1.2.1. Add Unit 2 drawings to the Reference Drawings list. There is no current reference to reference drawing 17 in the UFSAR text. Therefore, a reference is being added to refer to the drawing for piping supports. Unit 2 drawings were added to the references where applicable.

Change Item Sub # 21
Remove service water as a backup to pipe penetration coolers from section 9.2.1.2.2. UFSAR Change Request FN 90-72 was approved and implemented for DCP 89-24-1 and 89-25-2. These DCPs, in part, eliminated service water as a backup to pipe penetration coolers. FN 90-72 removed references from the UFSAR of service water lines supplying alternate cooling water supply to the containment pipe penetration coolers. However, the text of section 9.2.1.2.2 was not modified although the coolers were removed from the succeeding list.

Change Item Sub # 26
Change the following in section 9.2.1.6:
A. Item 2 - The temperature transmitters on the discharge of the recirculation air cooling coils only display on CRTs, therefore this indication will be discussed in item 10 of the list. This is an editorial change where the information is being moved from one item to another.
B. Item 5 - There is no flow indication for the charging pump lube-oil cooler SW inlet. This information will be deleted from the table. Lube oil flow through the lube oil coolers is measured at the outlet and discussed in item 10 since it is displayed on the CRT only. The flow indication for the charging pump lube-oil cooler is taken from the outlet of the coolers versus the inlet. This provides the similar technical information and is adequate for measuring service water flow through the coolers. Since Item 10 includes this item it may be deleted from item 5 of the table. The inlet flow transmitters were removed from the inlet to the charging pump lube oil coolers when they were upgraded via DCP-79-S09. The UFSAR was updated in some places to eliminate items associated with these flow elements and the old coolers. This item was missed.
C. Item 10 - There are no longer service water cooled charging pump seal water coolers. This information will be deleted from the table. The seal water coolers were removed by DCPs 95-127 (Unit 1) and 95-216 (Unit 2) and the UFSAR was updated via UFSAR change request FN 96-092. This item was missed.

Change Item Sub # 30
Restructure the references in section 9.2.28. Reference 4 is being deleted and the full date of the reference is added. The references are being restructured to be consistent with the UFSAR Writer's Guide.

Change Item Sub # 32
Add decimal points to the differential head across screen, in/%clean values in Table 9.2-4. Equipment specification by Stone and Webster, NAS-129, Traveling Water Screen Data, shows that the decimal from the differential head across screen was omitted from the FSAR.

Summary:
The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.
Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub # 2
Change this item in section 2.4.2.2 to add a second flow path that could be used to process and monitor the flow from the service water reservoir. The original design of the Service Water Reservoir had less spray arrays and less chemicals than are currently used. The Service Water Reservoir loses water from evaporation and must be made up to on a regular basis. The history of the plant shows that, during heavy rainfall, the lake rises due to runoff and tributaries causing the floodgates to be opened to maintain the level. But during this same rainfall the Service Water Reservoir has not been affected by flooding conditions. Today, the Service Water Reservoir would probably not be lined up in the reservoir-to-lake configuration because the reservoir is currently chemically treated and the plant has restrictions on releases to the lake. For flood design considerations and/or any detection of radioactivity, a portion of the service water system could be discharged to the liquid waste system where it would be monitored and processed before releasing it to the discharge canal. Both methods of valve lineups are original plant design. Since the proposed change describes an approved method of discharge through the liquid waste system that was original plant design, it does not involve physical changes to the facility or require procedural changes. There is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only

involve adding the description of an additional discharge path to the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 4
Remove "ft." from the calculated safety factor of 2.28 in section 2.4.11.6 since a safety factor is a dimensionless number. In addition, a statement is being added to better indicate how the safety factor was derived. The existing UFSAR statement indicates a safety factor of "2.28 ft.." Since safety factors are dimensionless, "ft." will be deleted. The original FSAR did not contain the "ft" reference. This is a typographical error that occurred during the conversion to the UFSAR. Drawing 11715-FM-6B identifies the normal reservoir level as 250'-0". The extreme low water level of 245.7' is consistent with the Auxiliary SW pump vendor specification sheet included in NAS-98, "Specification for SW Pumps & SW Screen Wash Pumps NAPS Units 1 & 2," which identifies the extreme low water level elevation of 246'. The 245.7' elevation conservatively assumes a low-water surge estimate of about 0.3' below the still-water surface. The minimum operating level of the pumps is also confirmed by referring to NAS-98 which specifies a submergence of 3'6", and when added to the suction bell elevation of 236'8" (11715-FM-6B), equals 240.17'. The safety factor of 2.28 is based on the margin from the normal level of 250' to minimum required level of 240.17' divided by the margin from 250' to the extreme low water level of 245.7'. Since the proposed changes describe how a safety factor has been calculated, it does not involve physical changes to the facility or require procedural changes. There are no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve clarifying the description of a safety factor in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.
Change Item Sub # 5
Change the statement in section 3.8.1.1.7 to state the monorail system is used to lift the trash basket for the traveling screens. The service water pumps are pulled by removing the corresponding removable block on the pump house roof. Drawing 11715-FC-38C-9 shows that the monorail is located on the ceiling near the west wall of the pump house. This location keeps it out of the way of removal of the service water pumps as previously stated. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 7
Change Table 3.9-1 to show that MOV-SW-113/213 B are service water lines to the fuel pit coolers and MOV-SW-113/213A are service water lines from the fuel pit coolers. MOV-SW-119, 219 are incorrectly listed as being 24" valves. The valve size will be changed from "24" to "8" for these butterfly valves on the service water makeup line from the screenwash pumps. The valve type will be changed from "Gate" to" Butterfly" for TV-SW-101A, B and TV-SW-201A, B. The original FSAR listed the valves and lines incorrectly and the error has been carried through to the present UFSAR. Station drawing 11715-FM-078A, Sheet 4 shows the correct lines and MOVs to and from the fuel pit coolers. It is apparent that the lines were confused in the FSAR. The 24 inch lines are from the auxiliary service water pumps, which can also supply makeup to the Service Water Reservoir. The 8 inch piping and valves are from the circulating water screenwash pump lines, which are the mark numbers stated in the UFSAR. MOV-SW-119, 219 are listed on the plant specification sheets and depicted on 11715-FM-078A as being 8 inch butterfly valves.

Plant drawing and original specification NAS-89 show that TV-SW-101A, B and TV-SW-201A, B are butterfly valves, not gate valves. There has been no physical change to the type of valves, lines or their direction since the plant was built. Since the proposed changes correct information in the UFSAR that has existed since the FSAR and do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 8
Separate feedwater and service water into different sub-sections in 3.11.2 and indicate that there are service water check valves and piping going to the recirculation spray heat exchangers located in containment. There are SW check valves in containment. As indicated in UFSAR Table 3.11-2, the only components of the service water system that are subjected to the combined high temperature, pressure, humidity, and radiation environment are the check valves and piping going to the recirculation spray heat exchangers located in containment. Like Quench Spray, there is no requirement for environmental testing or analysis of the 150-lb. class carbon steel piping. The check valves meet the criteria specified in NUREG-0578, Section 2.1.6.b, for increased cumulative radiation resistance. Since the proposed changes describe the requirements for environmental testing that are qualified in Table 3.11-2 of the UFSAR, it does not involve physical changes to the facility or require procedural changes. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 9
Add Safety-Related to title of Table 3.11-2, add sub-identifiers to each number, and spell out abbreviations. The following changes will be made to the SW system components section of the table:
b) Auxiliary Service Water Pumps: Change LOCATION from main circulation... to main circulating
e) typographical corrections
f) Service water MOVs: Change LOCATION to reflect all MOVs: Quench Spray pump house, Auxiliary building, Turbine building, Main circulating water intake structure, Turbine building, and Service water valve house. Change USE to include Safety Injection functions: Isolate SW to bypass header, open SW to spray arrays. Change valve coolers to heat exchangers. Delete extra house.
g) Service water check valves: Change LOCATION to reflect all check valves: delete inside, expanded SW to service water, delete etc., add Quench spray pumphouse, add auxiliary building, add main circulating water intake structure, add turbine building, and service building.
h) Service water piping to safety related equipment - Change USE: add for recirculation spray heat exchangers. Change LOCATION: Delete Inside. Move item k) Piping to this item. Change LOCATIONS: Replace safeguards building with Quench Spray pump house, add Auxiliary building, add Turbine building, add main circulating water intake structure, add service building, and add service water valve house. Change USE: replace service water with various plant, add s to system.
i) Service water radiation monitor pumps: Change LOCATION to Quench spray pump house Change USE: Expand RS to Recirculation Spray and coolers to heat exchangers
j) Service water radiation monitors: Change LOCATIONS to Quench spray pump house shielded room. Change USE from cooler to heat exchanger.
Note: Add the word equipment and remove the word and. Per the UFSAR text, Table 3.11-2, Location of ESF Devices and safety-related devices not within Westinghouse scope, required to function during and after any of the hypothesized accidents, lists the location and use of some of the service water system components. Therefore, Safety-Related will be added to the title.

b) Changing LOCATION from main circulation... to main circulating is editorial in nature to reflect proper name of the structure.
e) typographical corrections
f) DCP 84-35 abandoned the MOVs in the pump house and installed valves in the valve house. Correct the name of the quench spray pump house from safeguards area. Include MOVs in all locations.
Change Use to include response to Safety Injection: Isolate SW to bypass header, open SW to spray arrays.
Remove component "valve" coolers in Use. The original FSAR had the proper name "component coolers". This was inadvertently added in the change from the FSAR to the UFSAR and carried through to the current version. The correct names are the component cooling heat exchangers and recirculation spray heat exchangers.
g) Service water check valves: Change LOCATION, to reflect all check valves: addition
Change Item Sub # 9 (cont'd)
h) Service water piping to safety related equipment: Change USE and LOCATION: clarification. Move item k) to this item. Piping: Change LOCATIONS to include all locations: addition. The USE field is being clarified. The piping supplies cooling water for various plant systems, not service water: clarification
i) Service water radiation monitor pumps: Change LOCATION to reflect current terminology for this safeguards area per prints, passport, operating procedure valve lineups is quench spray pump house: clarification. Change USE to reflect current teminology: clarification
j) Service water radiation monitors: Change LOCATIONS to Quench spray pump house shielded room current terminology for this safeguards area per prints, passport, operating procedure valve lineups: clarification. Change USE to reflect current terminology: clarification
Note: Reworded for clarification. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. No analyses or setpoints are affected. The margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 11
Change the description of the service water reservoir supplying SW to four units in section 3E.2.1 to the service water reservoir being sized to supply water to four units. Change section 9.2.5.1 of the UFSAR to state there are only two units that may need to be cooled down and in the event of an accident, only one remaining unit will need to be maintained in safe shutdown. The service water reservoir supplies service water to Units 1 and 2. Units 3 and 4 were in the original design but were never completed. The service water reservoir was originally sized to supply water to four units. The current heat load analysis only considers two units. Since updating the UFSAR to delete reference to Units 3 and 4 does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve deleting the reference to Units 3 and 4 from Section 3E of the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 12
Change section 9.2.1.1 to indicate that additional service water system throttling to ensure design flow rates through the RSHXs is unnecessary. CCHX differential pressure limit "(27 psid)" will be deleted. Similarly, it is not necessary to state in parenthesis the design SW flow rate of the RSHXs, and this will be deleted. The existing UFSAR statement was added under Change Request FN 92-11. However, the statement, as written, may be somewhat misleading. Since the statement was taking credit for the design limit on dP across the CCHXs, some initial throttling may have been required. The statement should have indicated that additional throttling to ensure design flow rates through the RSHXs was unnecessary. In addition, the maximum design dP is now 30 psid as discussed in ET CME 97-0064, "Main Service Water Operational Pressure Limits, NAPS". The proposed change is supported by calculation ME-0485 which

used a KYPIPE2 hydraulic model of the SW system to investigate various SW pump and system configurations. Of particular relevance are cases 2 & 3, performed for Appendices A through D which evaluated CDA conditions with three SW pumps operating and SW flow through the RSHXs unthrottled. For all three pump cases, including a CDA on unit 1 or unit 2, a significant margin exists for providing greater than design SW flow (4500 gpm) through the RSHXs. Deletion of the CCHX differential pressure limit "(27 psid)" from the sentence was deemed appropriate since the value stated was no longer correct and adds no value to the statement (knowing that the limit is 27 psid does not prove to the reader that sufficient SW flow will be available to the RSHXs). The current design limit was evaluated by the safety evaluation for DCP 97-002. However, UFSAR Change Request FN 97-025 did not correct the UFSAR. It is not necessary to state in parenthesis the design SW flow rate of the RSHXs. The typical flow rates are provided in Table 9.2-1 and Section 6.2. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. No analyses or setpoints are affected. The margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 13

Divide statement in section 9.2.1.1 into two sentences. One describing service water valve action and one describing containment isolation valve action. When the service water system is supplying backup cooling to the containment recirculation coolers and there is a LOCA resulting in a CDA, coincident with a loss of off-site power, and a loss of instrument air, isolation of the service water system on the accident unit is provided by containment isolation valves 1-CC-TV-100A/B/C and 1-CC-105A/B/C, and 2-CC-TV-200A/B/C and 2-CC-205A/B/C. Since the containment isolation valves are on the outlet side of the cooling coils they do not actually isolate them. The inlet side to the cooling units do receive a close signal but because of their non-EQ status they cannot be taken credit for as isolation valves. Since, the containment isolation valves are two redundant valves per line and are EQ they meet all the requirements to assure the SW flow through the cooling units is secured. Safety Evaluation 96-SE-OT-55 was approved on October 15, 1996 and states "Therefore in an effort to further clarify operation of the trip valves and status isolation following a loss of IA, a statement will be added to the SW reliability section to describe SW trip valve operation and operation after a loss of IA." Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve clarifying the description of the system operation in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 15

Modify the discussion in section 9.2.1.1 to clarify that if a CDA were to occur, the SW flow through the accident unit's containment recirculation air cooling coils and CCHXs would be automatically secured. Rewording of the sentence is being made to eliminate use of the word "isolated." The word "isolated" suggests both inlet and outlet double valve isolation with regard to the containment recirculation air cooling coils. Only the "CC" designated trip valves are taken credit for with regard to CDA isolation of SW. Clarification is being made to state SW flow through the accident unit's CCHXs also will be automatically secured. Since the proposed changes are for clarification purposes and do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve clarifying the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 16
Remove the reference in section 9.2.1.1 to the pump bodies for the auxiliary service water pumps and the screen wash pumps being heat traced and state that the discharge nozzles are heat traced. The pump bodies which extend into the bay are not heat traced and are not required to be. Although the outlet nozzles for the auxiliary service water pumps and the screen wash pumps are heat traced, the overall pump bodies are not heat traced. The pump bodies do not require heat trace since they are vertical pumps and any water within the body drops back to the inlet bay level when the pump is not in service. That is, there would be no stagnant water which could freeze in the vertical section of the pump thus heat tracing provides no benefit. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 18
Change the potential four unit total maximum calculated rating from 11,345 MWt to 11,354 MWt in section 9.2.1.2.2. The potential four unit total maximum calculated rating of 11,354 MWt was the basis for Stone & Webster calculation dated October 11, 1972, Service Water Reservoir Design Heat Loads. This rating is based on 2900 MWt for Units 1 & 2, and 2777 MWt for Units 3 and 4. The inverted number was in the FSAR. Since the proposed change corrects a transpositional error and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the potential four unit total maximum calculated rating value in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 19
Clarify in section 9.2.1.2.2 that the maximum rate of heat transfer with maximum safeguards available to the service water system occurs early during the first hour following a loss-of-coolant accident when approximately 875x10^6BTU/hr will be transferred to the service water flowing at approximately 30,000 gpm for two units. The maximum safeguards heat transfer rate to the service water is reduced to approximately 205x10^6BTU/hr by the end of the first hour. This statement was changed based on heat load data from ET CME 95-0105. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of heat load transfer to the service water system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 20
Change the word "will" to "can" in the description in section 9.2.1.2.2 of the operation of the spray arrays. The UFSAR sentence above uses the word "will" which implies that there is only one way to operate. This sentence should be clarified by reflecting there are other options available. Operating procedure 0-OP-49.4 addresses three precautions and limitations on this system. First, during the transition months (October, November, March and April), Service Water Sprays may be operated using either the summer or winter mode or a combination of both. However, the bypass and spray arrays on an individual header should not be operated at the same time except for testing. Second, guidelines for Winter Service Water System Operations are given. These guidelines are used to minimize CCHX fouling and maintain CC temperature. Here it is recommended that both Service Water headers should be aligned for full bypass flow and all SW spray arrays should be removed from service. Third, it is noted that the Service Water Bypass MOVs are in

series and can be throttled. The normal method of throttling flow is to fully open the Unit 1 upstream valve and to throttle the Unit 2 downstream valve. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 22

Makeup for the service water reservoir can be supplied by two of the four circulating water screenwash pumps from the North Anna reservoir. These pumps have a nominal 910 gpm capacity each. This information will be corrected in section 9.2.1.2.2. The specified capacity of the circulating water screenwash pumps is in conflict with the UFSAR. FM-077A and NAS-0088A states the circulating water screenwash pumps have a capacity of 910 gpm @ 225 ft. NAS-98 lists the service water screenwash pump's capacity at 500 gpm. It appears that the circulating water screenwash pumps were mixed up with the service water screenwash pumps since this information appeared in the FSAR. Since the proposed changes corrects the nominal gpm capacity for the circulating water screenwash pumps and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve correcting the capacity of pumps in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. The capacity of the service water screenwash pumps has not changed, nor any setpoints associated with the pump. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 23

Remove eight hours from the time that the screens operate automatically in section 9.2.1.2.4. The timer for this circuit is adjustable and is nominally set for 24 hours. Per vender technical manual 59-L574-00001, there is no specific time to operate the screens. The timing of the operation of the screens is adjusted based on plant experience and actual need. Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves deleting the time interval that the screenwash pumps will operate from the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. The deletion of the UFSAR discussion of the interval that the screens are automatically operated does not change a true setpoint. The timing of the operation of the screens is based on plant experience and actual need. Since no analyses are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 24

Change section 9.2.1.2.5 to clarify that the auxiliary service water pumps may be restarted automatically once the "H" bus is re-energized, if they were stopped by the undervoltage signal. The auxiliary service water pumps can only be started manually initially, but once running the control circuitry allows them to restart automatically upon return of bus voltage. Electrical drawings 11715(12050)-ESK-5BC show the control circuits for the auxiliary service water pumps. These drawings show that the pumps can be started manually and stopped manually or automatically with the occurrence of a motor electrical fault or undervoltage on the pumps' respective "H" bus. Since the proposed clarification of the UFSAR do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve clarifying the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different

type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.
Change Item Sub # 25
Add to section 9.2.1.4.1 that AL-6XN is used in the SW system and that the CCHX radiation monitoring and instrument air piping are made of stainless steel. In addition, indicate that the valves in the Service Water Chemical Addition System are made of polyvinyl chloride material. Remove the sixth paragraph of the section. The majority of the service water piping is carbon steel. Some sections, which branch off from the main piping, are different classes. The piping for the charging pump cooler, RSHX and CCHX radiation monitoring, IA compressors, and control room chillers use stainless steel. In addition, NAS-1009 does permit AL-6XN to be used for replacement of corroded SW system carbon steel and stainless steel piping. DC-85-48-3 Service Water Chemical Addition System states that all the piping, valves and fittings within the new building are polyvinyl chloride material. However, the statement in the UFSAR that states all valves are made of steel was not changed by FN 92-75. There are more exceptions for the stainless steel piping than the UFSAR states. The instrument air piping was changed to stainless steel by DCP 83-13, but the UFSAR was not updated. The CCHX piping material was changed by DCP 94-010. The Engineering Review and Design section of the DCP states that only a drawing needs to be changed in the UFSAR. A change is necessary to include the CCHX radiation monitoring piping and IA compressors. The control room chillers are addressed in the UFSAR. FN 98-011 added the information about AL-6XN being used as replacement piping. However, the amount of information that was added by FN 98-011 is greater than the level of detail necessary to describe piping materials. The necessary information will be integrated in to the information into the first paragraph of section 9.2.1.4.1, which describes the piping materials used throughout the SW system. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of types of piping in the service water system in the UFSAR to match what has been changed through the design control process and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 27
Clarify section 9.2.2.2.4 so that it no longer implies that remote operation from the control room during the alignment of the backup supply from service water to the air recirculation air coolers is performed. The original UFSAR and FSAR statement implies operation from the control room. When chilled water is lost to the containment air recirculation air coolers, operations initiates 1-AP-35, Loss of Containment Air Recirculation Cooling. Step 4 verifies lack of chilled water flow and instructs operations to align SW to the containment air recirculation cooler using 1-OP-21.1. Procedure 1-OP-21.1, Containment Ventilation, Step 5.8 instructs operations on aligning the SW to the containment air recirculation cooler. An operator is dispatched to the field to unlock the handwheels and energize the MOVs. Then the control room operator completes the procedure to align service water to the air recirculation air coolers.
These statements were incorporated into the final draft of the UFSAR, dated July 1982, in response to NRC comment 9.25 to the FSAR. The FSAR, dated July 23, 1979, as well as the current UFSAR also states in section 9.2.2.5.3, Incident Control, that "Chilled water supply and return for the recirculation air cooling coils can be manually switched to the Service Water System....."
When 1-OP-21.1 was revised on June 20, 1980 to include locking of the handwheels and de-energizing the MOVs, the screening was improperly marked "No" in response to "Does this change the operating methods as described in the FSAR?"
Safety Evaluation 96-SE-OT-55 was approved on October 15, 1996 and states "Therefore in an effort to further clarify operation of the trip valves and status isolation following a loss of IA, a statement will be added to the SW reliability section to describe SW trip valve operation and operation after a loss of IA."
SW header isolation MOVs, MOV-SW-110/210A,B and MOV-SW-114/214A,B are not required to mitigate an accident. The MOV position during normal operations is the same as the required valve accident position: closed. The proposed clarification of the UFSAR does not involve physical changes to the facility. The changes that were made to the operations procedure does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously

evaluated in the safety analysis report. Because the changes only involve clarifying the operation of the system in the UFSAR and do not involve physical changes to the facility and the MOVs are left in their accident position, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 28
Revise section 9.2.5.2 to state the requirements of Regulatory Position No. 1 are only met when both the Service Water Reservoir and the North Anna Reservoir (Lake Anna) are operable. It will include information that in the event one of the water sources being lost due to natural phenomena or single failure of man-made structural features, the other source has the capability to provide cooling for safe shutdown and cooldown of both units. This update will include clarification for the case of a LOCA on one unit and a simultaneous loss of station power to both units with the most limiting single failure, that there are four service water pumps located in the service water pump house on the Service Water Reservoir that can provide the required cooling. This UFSAR statement describes compliance with regulatory position No. 2 as provided in Regulatory Guide 1.27, "Ultimate Heat Sink". Regulatory position 2 states "The ultimate heat sink should be capable of withstanding the effects of the most severe natural phenomena associated with its location, other applicable site related events, reasonably probable combinations of less severe phenomena or events where this is appropriate to provide a consistent level of conservatism, and a single failure of man-made structural features without loss of the capability specified in regulatory position I. above." The UFSAR statement will be clarified by stating that the ultimate heat sink satisfies the requirements of Regulatory Position No. 1 when both the Service Water Reservoir and the North Anna Reservoir are operable. In the event one of the water sources is lost due to natural phenomena or single failure of man-made structural features, the other source has the capability to provide cooling for safe shutdown and cooldown of both units. If there is a LOCA on one unit and a simultaneous loss of station power to both units with the most limiting single failure, there are four service water pumps located in the service water pump house on the Service Water Reservoir that can provide the required cooling. With regard to the ability of the auxiliary service water pumps having the capability to provide sufficient cooling for safe shutdown of the units, no calculations could be located that specifically determined the SW flow rates that would be available to support a dual unit shutdown. However, the auxiliary service water pumps have essentially the same performance capability as the main service water pumps and the overall resistance of the lake-to-lake alignment is lower than the spray reservoir-to-spray reservoir alignment (for lake-to-lake, piping runs to and from the SW headers are shorter and no spray nozzles are used). It can also be concluded that the lake has sufficient heat removal capacity since the normal operating heat loads, rejected by the main condensers, are much greater than shutdown heat loads. Key reservoir parameters, such as maximum temperature and minimum level, are controlled by Technical Specification 3/4.7.5.1, "Ultimate Heat Sink" and monitored by Control Room Logs. This change is consistent with the description given in the NRC's Safety Evaluation related to Amendment Numbers 152 and 136. Since the proposed change to the description of compliance with a Regulatory Guide and complies does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of compliance with a Regulatory Guide in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.
Change Item Sub # 29
Revise section 9.2.5.3 and 15.0 to indicate that the SW Reservoir provides the primary cooling water source and that North Anna Reservoir provides a backup source. Further, it should be clarified that both sources can provide cooling for safe shutdown and cooldown, but the SW Reservoir satisfies the cooling requirements for both units during DBA conditions. This UFSAR statement describes compliance with regulatory position No. 3 as provided in Regulatory Guide 1.27, "Ultimate Heat Sink". Regulatory position 3 states "The ultimate heat sink should consist of at least two sources of water, including their retaining structures, each with the capability to perform the safety functions specified in regulatory position 1 unless it can be demonstrated that there is an extremely low probability of losing the capability of a single source. There should be at least two canals or conduits connecting the sources(s) with the intake structures of the

nuclear power units, unless it can be demonstrated that there is an extremely low probability that a single canal can fail entirely from natural phenomena. All water sources and their associated canals or conduits should be highly reliable and should be separated and protected such that failure of any one will not induce failure of any other." The UFSAR statement should be revised to more clearly indicate that the SW Reservoir provides the primary cooling water source and that North Anna Reservoir provides a backup source. Further, it will be clarified that both sources can provide cooling for safe shutdown and cooldown, but the SW Reservoir satisfies the cooling requirements for both units during DBA conditions. This change is consistent with the description given in the NRC's Safety Evaluation related to Amendment Numbers 152 and 136. Since the proposed change to the description of compliance with a Regulatory Guide does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of compliance with a Regulatory Guide in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 31

Change the flow rate for component cooling in Table 9.2-1 to 10,500 gpm, chemical and volume control to 75 gpm, and air conditioning to 237 gpm. The totals listed in the table are being changed to reflect these flow rate changes. The typical service water equipment flow rates listed in Table 9.2-1 are being changed to match current design and operating flows. The parameters requiring a change have not been updated since 1979.

The flow rate for component cooling was determined by 1) calculation 12050-432N and ME-0485, and 2) CCHX specification NAS-96 and NAP-0090.

The flow rate for the chemical and volume control system was determined by the vendor technical manuals which states that at 110F, the lube oil coolers need 15 gpm flow, the gear box coolers need 10 gpm, and the seal coolers need 5 gpm (2-1/2 gpm per seal box cooler). Thus, the UFSAR derivation is the algebraic sum of the 3 components times three charging pumps. Since the seal coolers have been removed by the design change process, the actual required flow is 25 gpm at an analyzed temperature of 110F. Therefore, the UFSAR should be changed to 75 gpm per unit, 150 gpm total. It should be noted that the 110F temperature stated as the upper bound in the VTM, bounds the worst-case temperature following a Condition IV event. The normal requirement for Condition I events, at 95F, would be 7 gpm flow to the lube oil coolers and 5 gpm flow to the gear box coolers (36 gpm per unit, 72 gpm total).

Per Specification NAS-0314, each chiller requires 237 gpm flow rate. The seal coolers were removed by an approved DCP and safety evaluation. The proposed changes do not require procedural changes. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve updating typical flow data in the UFSAR and the physical changes to the facility was previously evaluated, and the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 33

Correct Figure 9.2-1. On Sheet 1, there are valves depicted in this figure that are not shown in the correct valve position, which is closed, for normal operations. In addition, the arrangement of the valves downstream of the radiation monitor off of the CC heat exchangers needs to be corrected. The isolation valves are downstream of the check valves.

On Sheet 2, there are valves depicted in this figure that are not shown in the correct valve position, which is closed, for normal operations. In addition, the seal cooler portion, of the charging pump cooling system needs to be removed per DCP 95-127. Sheet 1 and 2 were created by FN 96-056 which was the UFSAR change request that removed all of the "FM" drawings from the UFSAR. These drawings were reviewed for validation before they were put in the UFSAR, but no comments were received. It was missed that the valves should be shown as closed. In addition, the correct location of the isolation valves is downstream of the CC heat exchangers. DCP 95-127 removed the seal coolers from the charging pumps. UFSAR change request FN 96-092 and Safety Evaluation 96-SE-MOD-034 corrected other sections of the UFSAR but this figure was missed. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing a drawing in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 34
Clarify the description of the electrical power supplied to the solenoid valves in Section 9.2.1.3.1 and delete the reference to power being supplied during a safety injection signal. This statement is accurate as written although slightly misleading. Both solenoid valves must be energized to open the air operated valve. The fact that they are fed from different batteries does not add any reliability to this function since a single failure of one of the solenoid valves will still prevent the air operated valve from opening. The fact that the valves are fed from batteries does allow them to be actuated during a loss of power event and adds extra confidence that power will be available to open the valves. Since the valves upstream of the air operated valve are normally closed with power removed (supply breakers normally open), there are additional steps that need to be taken by the operator to open the MOVs and provide a flow path. The use of separate batteries to the solenoid valves would be important as an isolation function, however, the containment isolation valves are taken credit for this function. The solenoid valves are de-energized by a CDA event to close the air operated valve and this is an additional level of assurance, but is not considered a safety related isolation function. For the above reasons it is more correct to simply state that the solenoid valves are powered from vital power for improved reliability. The reference to a safety injection signal is immaterial since there is no automatic actuation of these valves during a safety injection event and, without a loss of power event, the valves would function whether supplied from vital or non-vital power. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 35

The radiation monitoring equipment associated with the old service water return header in the pump house should be identified in the UFSAR as abandoned. DCP 86-15-1, Service Water Reservoir Improvements/Fiberglass Spray System Demolition, and associated was written to remove radiation monitor equipment from the service water pump house. The radiation equipment was not removed but abandoned in place by EWR 91-425 and Technical Report ME-0013, Justification for Deferral of Work Associated with DCP 86-15-3, dated October 13, 1988. UFSAR Change Request FN 87-21 that was written for DCP 86-15-3 did not address the need to correct the UFSAR for removal of the radiation monitoring equipment. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. No analyses or setpoints are affected. The margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed
non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-18

Description

ET CME 99-0017, Rev 0, Acceptability of Auxiliary Building Exhaust Filtration System

The maximum allowable ECCS leakage per Unit (excluding charging pump cubicles and Safeguards) during normal operation will be limited to 600 cc/hr. Total ECCS leakage is currently limited to 600 cc/hr by JCO 98-C-98-01. Following closeout of the JCO, the total ECCS leakage limit will return to 900 cc/hr. However, the allowable leakage in areas outside Safeguards and the charging pump cubicles will continue to be limited to 600 cc/hr. Total ECCS leakage is tracked by Procedure 1/2-LOG-20.

Summary

The Auxiliary Building Central Exhaust was designed to filter the exhaust from areas where ECCS leakage could occur. Recently, the effectiveness of the Central Exhaust filtering capability has been questioned concerning two separate issues. First, it may not be possible to line up the exhaust flow from Safeguards and the charging pump cubicles to the filters following a design basis accident coincident with a Loss of Offsite Power. This issue is currently being addressed by JCO C-98-01, which reduced the total allowable ECCS leakage from system components outside containment from 900 cc/hr to 600 cc/hr. Second, subsequent to PPR 98-039, the ability of the Central Exhaust to effectively filter 100% of the areas potentially containing ECCS leakage was questioned. Although the Auxiliary Building is maintained at a negative pressure, conclusively demonstrating that all the airflow from these areas is filtered would require complex models and field testing.

Therefore, sensitivity analyses were performed to determine the maximum amount of filter bypass (unfiltered release) that could be accommodated by the conservatism in the UFSAR Chapter 15 LOCA analysis, and by the margin to the dose limits established by the licensing documentation for the LOCA analysis. In the analyses supporting the JCO, all ECCS leakage outside containment was assumed to be unfiltered. From the PPR perspective, a substantial portion of the ECCS leakage outside the Safeguards and charging pump cubicles is assumed to be potentially unfiltered.

In the evaluation for the PPR, only the input parameters which could be changed consistent with standard industry licensing assumptions were examined. Specifically, the dose conversion factors were changed. Regulatory Guide 1.109 dose conversion factors used in the Reference 2 analysis were changed to the ICRP-30 dose conversion factors, which have been used in approved licensing analyses.

The evaluation shows that while North Anna operates under JCO C-98-01, the total allowable leakage limit of 600 cc/hr continues to be acceptable. This limit was established on the basis that all of the leakage may be unfiltered. When the JCO is closed out following the implementation of REA 98-231, the total allowable leakage limit will be returned to 900 cc/hr. The evaluation for the PPR shows that up to 600 cc/hr of this allowable leakage could be completely unfiltered without causing the dose consequences to exceed the licensing basis limits. The licensing basis limit for the Control Room thyroid dose is 19 rem and was established by NRC letter serial #90-116, dated February 28, 1990. The limit for the EAB thyroid dose was established by the NRC Safety Evaluation documented in NUREG-0053 dated June 1, 1976.

Based on these analyses, and those performed for JCO C-98-01, the allowable ECCS leakage outside containment will be limited to 600 cc/hr while operating under the JCO. Since the analyses assumed that this leakage was unfiltered, limiting ECCS leakage to this amount will avoid the need to calculate the actual filter flow. Following the modification required for closeout of the JCO (i.e., restoration of filtering capability for the Safeguards and CH pump cubicles), the total allowable ECCS leakage outside Containment will be returned to 900 cc/hr. Of this amount, up to 600 cc/hr will be allowed in areas outside Safeguards and the charging pump cubicles.

Major Issues

Probability of Consequences or Malfunctions - No physical changes to plant equipment will be made. Maximum operating pressure or temperatures will not be increased. The methods of operating plant systems will not be changed. No control or protection circuitry will be changed or affected. Slight ECCS leakage outside of containment may occur during normal operation and accidents. This is an effect of equipment operation, not a contributor to malfunctions or accidents. Also, the actual allowable ECCS leakage is lower than the previous allowable. Therefore, there will be no increase in the probability of occurrence or malfunctions of equipment previously evaluated.

Even with the potentially unfiltered leakage, the dose consequences for the LOCA remain less than the limits in the current licensing basis documents. Therefore, the consequences of the LOCA, or the malfunction of equipment previously evaluated, will not increase.

Since no physical changes are being made to the plant equipment, operating procedures (OPs) or control or protective circuitry, the possibility of a different accident or malfunction of equipment of a different type is not created.

Technical Specification / Operating License

The amount of allowable ECCS leakage is not directly addressed in the Technical Specifications or Bases. However, Control Room habitability is discussed in TS 3 / 4.7.7 with respect to post-accident radiation dose. Control Room thyroid dose consequences remain well within the licensing basis limits (NRC SER limit of 19 rem), even if all of the leakage is not filtered. TS 3/4.7.7 Bases states that the CR emergency ventilation system ensures that the CR will remain habitable following accident conditions by limiting radiation exposure to GDC 19 limits. Therefore, the margin of safety as described in the Bases section of the Technical Specifications will not change.

Safe Shutdown Capability

Limiting the Aux Building ECCS leakage in areas outside Safeguards and the charging pump cubicles to 600 cc/hr will have no effect on the safe shutdown capability of the plant.

Environmental Impact

A reduction in the allowable ECCS leakage in areas outside Safeguards and the charging pump cubicles will not affect the Final Environmental Statement.

ISFSI

A reduction in the allowable ECCS leakage in areas outside Safeguards and the charging pump cubicles will not affect the Final Environmental Statement.

Based upon the above, ECCS leakage of up to 600 cc/hr in the potentially unfiltered areas of the Auxiliary Building (i.e., areas outside Safeguards and the charging pump cubicles) does not create an unreviewed safety question.

99-SE-OT-19

Description

UFSAR change request FN 99-011 affecting UFSAR Sections 11.1.1-5 and 15.3.6.2 and Tables 11.1-5 and 11.1-12.

North Anna Power Station routinely has letdown flows into the volume control tank (VCT) of approximately 80 gallons per minute. Section 15.3.6.2 of the UFSAR "Analysis of Effects and Consequences" states that the supporting radiological analysis (Stone and Webster calculation 11715 RP - A66-0, "Waste Gas Releases & Vol Control TK", February 25, 1972) assumed a flow into the volume control tank of only 60 gallons per minute for 5 minutes. The VCT rupture has been re-analyzed assuming a letdown flow rate of 160 gallons per minute for 25 minutes. Section 15.3.6.2 of the UFSAR has been re-written to reflect the revised VCT rupture radiological analysis. The activities in UFSAR Table 11.1-12 "Volume Control Tank Activities" have been replaced with the activities re-calculated in the new VCT rupture analysis. Based on changes to the assumptions for the analysis of VCT rupture, Section 11.1.1-5 and Table 11.1-5 will reflect a liquid volume of 96 cubic ft and vapor volume of 204 cubic ft.

Summary

The UFSAR VCT rupture radiological analysis (Stone and Webster calculation 11715 RP-A66-0, "Waste Gas Releases & Vol Control Tk ", February 25, 1972) assumes a letdown flow rate of 60 gallons per minute with delay of 5 minutes before the VCT is assumed to be isolated. The plant routinely sees letdown flow rates in excess of 60 gallons per minute. The VCT rupture was re-evaluated using an assumed letdown flow rate of 160 gallons per minute with a delay of 25 minutes between the VCT rupture and letdown isolation. These assumptions were chosen to conservatively bound the plant operating conditions.

The re-analysis of the VCT rupture accident (PA-0156, Rev.0, "North Anna Dose Consequences of VCT Rupture Accident", February 4, 1999) was based on the guidance and dose limits contained in NRC Branch Technical Position ETSB (Effluent Treatment Systems Branch) 11-5, "Postulated Radioactive Releases Due to a Waste Gas System Leak or Failure", Rev. 2, 1981. Consistent with the branch technical position, only noble gases were considered in the VCT rupture re-analysis although it is recognized that it is possible for the mixed resin beds - which remove the radioiodines - to be out of service for short periods of time for maintenance at power.

The original Stone and Webster results were 0.26 REM whole body and 0.27 REM thyroid at the exclusion area boundary. In the re-analysis, the dose consequences were less than the original consequences and less than the Branch Technical Position 11-5 limit of 0.5 REM whole body at the exclusion area boundary. The proposed UFSAR changes to reflect the results of the re-analysis of the volume control tank rupture accident do not:

1. Increase the probability of the occurrence of a ruptured VCT nor create the possibility for an accident of a different type than previously evaluated. No physical changes are being made to the plant and operation with letdown flow in excess of 60 gpm does not increase the probability of VCT rupture. The relief valve on the VCT has a flow capacity greater than the maximum letdown flow with all three letdown orifices in service (Reference no.4).

2. Increase the consequences of an accident previously evaluated and reported to the NRC. The whole body dose consequences are less than those reported in the UFSAR and less than the Branch Technical Position 11-5 limit of 0.5 REM whole body at the exclusion area boundary.

3. Decrease the margin of safety. The resulting exclusion area boundary whole body dose is less than that previously reported in the UFSAR, less than the Branch Technical Position 11-5 limit of 0.5 REM whole body at the exclusion area boundary and significantly less than the 10CFR100 limit.

Therefore, there is no unreviewed safety question associated with this change.

99-SE-OT-20

Description

North Anna UFSAR Change Request No. FN 99-004

UFSAR Change Request No. FN 99-004 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss Radiological Protection at North Anna. This package is a result of the Integrated Configuration Management Project review of systems, programs, and evaluations associated with Radiological Protection at North Anna.

Summary

The following 5 editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

#1 Replace references to the Environmental Technical Specifications with the NRC approved Offsite Dose Calculation Manual (ODCM) in the following locations:

1) In Section 2.4.13.4, the Environmental Technical Specifications (ETS) requirements for the Radiological Environmental Monitoring Program (REMP) have been transferred to the ODCM, VPAP-2103.

2) In Section 3A.21, the requirements of the radioactive effluents control program, which includes radioactivity in solid wastes, are now specified in the ODCM. These requirements are in accordance with Revision 1 of R.G. 1.21, June, 1974. The proposed change is editorial in nature in that it identifies the proper document that contains the environmental monitoring and surveillance requirements.

The radiological monitoring requirements in the originally issued Environmental Technical Specifications (Appendix B, to the Unit 1 and 2 Operating Licenses) no longer exist. They have been removed over the years and put into owner controlled programs that are required by station Technical Specifications. This change was implemented via NAPS Technical Specification Amendments Nos. 48 and 31 for Units 1 and 2, respectively. The two programs that essentially cover all of the ETS radiological monitoring requirements are:

1. Radiological Effluent Controls Program
2. Radiological Environmental Monitoring Program

The radiological monitoring requirements of these programs are included in the ODCM. The ODCM was originally reviewed and approved by the NRC when the ETS requirements were transferred to the ODCM. Updates to the ODCM are sent annually to the NRC.

#3 Revise Sections 11.2.8 and 11B.4.2 to qualify the water supply usage statements to the results of the Environmental Report used in support of the North Anna Power Station Operating License application. The Environmental Report for North Anna concluded that there were no known potable water withdrawals and only very limited recreational potential along the entire course of the North Anna River downstream from the site to West Point, about 65 miles southeast. This fact has not been re-verified. However, re-verification is not necessary since UFSAR Section 11.2.8 continues on to state that "...since there are no physical impediments to the use of the reservoir as a community water supply source, it was assumed that this was already the case." Therefore, the conservative approach was taken in the original plant assessment. Qualifying these statement to the conclusions of the Environmental Report clarifies the existing information and, as such, avoids the potential for misuse of the information as current-day fact.

#5 This change is intended to distinguish the North Anna reservoir which is the large part of Lake Anna that supplies cooling water for the station from the service water reservoir which contains the spray arrays. This is an editorial change and is consistent with the definitions set forth and approved in UFSAR Change Package FN 98-043.

#6 Delete the 5th paragraph in Section 11B.5 which contains outdated and redundant information. The information in this paragraph is based on the original 10 CFR 20 requirements and is obsolete. The paragraph preceding this one states that the doses to members of the public are based on the old 10 CFR 20 and that these doses are shown in Table 11B-8. The paragraph is being deleted since the statements of the old 10 CFR 20 requirements adds confusion to the current requirements being stated and the general purpose of the information contained within it is redundant to the preceding paragraph.

#12 Revise the following sections of the UFSAR to incorporate various editorial/administrative changes:

a) Correct the reference to 10 CFR 100.3(b) in Section 2.1.3.4. The referenced regulation, 10 CFR 100.3, "Definitions," was changed by rulemaking activities on 12/11/96 (Federal Register Notice, 61 FR 65175). Section 10CFR100.3(b) no longer exists, but the previously referenced definition of low population zone is still included in the definitions under the general section 10CFR100.3.

b) Change the reference in Section 12.1.6.1 to Figure 12.1-3 (Sheet 3). Figure 12.1-1 (Sheet 7) shows a cutaway view of containment. It does not show the VCT cubicles in the auxiliary building. These are shown in Figure 12.1-2 (Sheet 3). This error has existed since the original response to FSAR question S12.2 in Amendment 24 to the FSAR.

c) Correct the SWEC computer code name to "IND1109E" in Sections 11B.4 and 11.2.8. Per SWEC calculation 14938.11-UR(B)-007-0, the computer code used for the dose assessments is IND1109E not INDILOGE or INDIIOGE. The later names were in error due to a transcription error in the typing of the UFSAR update FN 87-13.

d) Correct the discharge rate values in Table 11.2-4 for Cr, Mn, and Rb. SWEC calculation 14938-UR(B)-008 formed the basis of UFSAR Change Package FN 87-13. The markup of FN 87-13 had the correct values for the discharge rate of these three isotopes, however, transcription errors (5 read as 8) from the markup to the text of Table 11.2-4 occurred. This change corrects these typographical errors. The total activity value remains correct.

e) Change the verb tense to reflect past participation in Atomic Industrial Forum (AIF) activities. Atomic Industrial Forum's Task Force on Occupational Exposures is no longer an active organization. Virginia Power's past participation is still noted, however, by this change in verb tense.

f) Correct the expected case value for containment structure equilibrium activity in Table 12.2-1. Calculation RP-11715-A92-2 specifies the value for the containment structure equilibrium activity as 6.7×10^{-9} for the expected value case. The previous value reported in Table 12.2-1 (6.7 X 10-7) is a typographical error that was originally in the FSAR. As shown in all of the isotopes and buildings listed in Table 12.2-1, the expected case value is always less than the design case value. This fact provides a basis for determining which of the two values is correct. Although the previous value is in error, it is higher and, therefore, it is a more conservative number. The correct value provides more margin to activity limits.

g) Add Figure 11B-1 which was inadvertently omitted in the UFSAR. Figure 11B-1 was listed in the index and used as a reference in the Revision 0 to the UFSAR. However, the original issue of the UFSAR accidentally omitted this figure. The figure is deemed necessary since the text of Appendix 11B is enhanced with the description of the exposure pathways provided in this figure.

h) Correct the table reference in Section 12.1.2.2 to Table 12.1-3 as the N-16 activity table. Table 12.1-3 contains information on corrosion product activity and N-16 activities in the reactor coolant. The current reference to Table 12.1-5 in Section 12.1.2.2 is incorrect.

i) Revise Section 12.2.6 to remove the potential confusion between the airborne concentrations used for inhalation dose estimates in Table 12.2-2 and the equilibrium activity concentration in Table 12.2-1. Section 12.2.6 uses the term "equilibrium air concentration" in the equation for determining the estimated inhalation doses in the containment, fuel building, turbine building, and auxiliary building. Table 12.2-1 provides the "equilibrium activities" in these four plant areas. The iodine "equilibrium" values for the containment and the auxiliary buildings in Table 12.2-1 are not the values used for the inhalation dose estimates in Section 12.2.6. Section 12.2.6 revises the assumptions used in the determination of airborne iodine concentration for the containment and the auxiliary buildings. However, the equation in Section 12.2.6 uses the term "equilibrium" and is, therefore, potentially confusing and misleading. The proposed change removes the reference to "equilibrium" in Section 12.2.6 and allows it to clearly refer to the "airborne concentrations" of iodine that are based on the assumptions explicitly contained within Section 12.2.6.

Summary Editorial Items:

The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.
With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following 10 non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

#2 Revise Section 3A.4 to remove discussions regarding elemental Iodine used in the post-LOCA thyroid dose calculation since the provided reference to Section 15.4.1.7 contains the necessary discussions. UFSAR Section 3A.4 deals with compliance with Safety Guide No. 4, "Assumptions Used for

Evaluating the Potential Radiological Consequences of a LOCA for PWRs" (Regulatory Guide 1.4). Per Regulatory Position C.1.a, the thyroid dose is calculated with the assumption that 85% of the iodine in the containment is in the elemental form. Calculation PA-0075 calculates the LOCA doses based on the assumption that 91% of the iodine in the containment is in the elemental form, 5% particulate, and 4% organic. The basis of the 91% value used in PA-0075 is in Appendix A of the SRP (NUREG-0800) Section 15.6.5. PA-0075 is the approved analysis of record for LOCA offsite doses. The use of SRP Section 15.6.5, Appendix A is already specified in the UFSAR in Section 15.4.1.7.2 and was incorporated into the UFSAR via FN 98-012 (98-SE-OT-30). The regulatory approvals for this change in methodology for the treatment of elemental iodine is provided in Safety Evaluation 98-SE-OT-30.

Since the proposed change does not involve physical change to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves revising the description in the UFSAR of the treatment of iodine in containment to NRC approved methodology and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

The proposed change correctly states the assumption for level of fuel failure used in the original evaluation, and does not impact any design basis information, or change any station commitment. Since the proposed change does not involve physical change to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting the description of the calculation input assumptions in the UFSAR and does not alter calculational results nor involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses results or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

#7 Revise Table 11B-9 to change the value for the ingestion thyroid dose via cow milk to 1.21 mrem/yr. Also, revise the note for this table to reference that a child at the nearest dairy, not an adult would receive this thyroid dose. The North Anna Environmental Impact Statement, Appendix K provided Operating License Stage updates to the offsite radiological dose projections. Section K.II.11 updates the assessments of gaseous releases. This updated information references the maximum thyroid dose at the nearest dairy as a child's dose (due to milk consumption) of 1.21 mrem/yr. Since the current Table 11B-9 references the adult dose, the table and its footnote are revised to properly identify the child dose as the maximum thyroid dose for an individual in this category. This information is previously identified in UFSAR Sections 11.3.8 and 11B.3.3.2.2.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The apparent increased thyroid dose is not new and was previously reported in the Environmental Impact Statements. Because the change only involves revising the summary information regarding maximum doses to individuals in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

#8 Mark Appendix 11C as HISTORICAL and provide an explanation of this designation in appropriate portions of Section 11.0. Revisions to Appendix 11C (since OL issuance) must also be removed in order for Appendix 11C to represent its original (at time of licensing) information and content. External references to Appendix 11C are also re-directed to appropriate information. The information contained in Appendix 11C is HISTORICAL and was provided as part of the North Anna Operating License application as a one-time evaluation of compliance to the requirements of the "Proposed" 10 CFR 50, Appendix I. It was accurate at the time the plant was originally licensed but was not intended or expected to be updated for the life of the plant. Continued compliance with 10 CFR 50, Appendix I is ensured through the plant Technical Specification which requires the Radiological Effluent Controls Program, Radiological Environmental Monitoring Program, Offsite Dose Calculation Manual, and a Land Use Census. When plant changes are made which affect the potential effluent releases from the station, Sections 11.2, 11.3, and Appendix 11B of the UFSAR are revised, as necessary, to maintain a current description of the expected liquid and gaseous releases. Such revisions would also address the impact on dose assessments to demonstrate continued compliance with federal regulations including 10 CFR 50 Appendix I. Accordingly, it is not necessary to maintain Appendix 11C for this purpose.

In the mid-1980s, a re-evaluation of the radiological impact of North Anna was performed by SWEC which addressed 1) changes in operation at NAPS, 2) modifications to circulating water system flows, and 3) revisions in source term determination associated with NUREG-0017. Results of this re-evaluation were incorporated into the UFSAR via change package FN 87-13 (concurrent with FN 89-02). The safety evaluations for these changes were contained within the Engineering Review and Safety Analysis (ER&SA) of DCPs 85-31-2 and 85-38-2. Revisions were made to Appendix 11C as well as to other portions of Section 11.0. The changes made to Appendix 11C were, in general, made to Sections 11.2 and 11.3 also. These sections are the system descriptions of the liquid and gaseous waste disposal systems, respectively. These sections and Appendix 11B provide the source terms and dose assessments for the liquid and gaseous releases during normal operation for both the design and expected cases for NAPS. It was not necessary to update Appendix 11C as a current analysis since it is essentially duplicated in Appendix 11B.

This proposed change returns Appendix 11C to the content of its original evaluation (at the time of licensing) as a HISTORICAL record. In some cases, the update in FN 87-13/89-02 placed the revised source term data in Appendix 11C only, and then referenced this information from Section 11.1 and the evaluations in Appendix 11B. This revised source term data, including the descriptive text that identifies the data, is moved via this change package into Section 11.1 which is the source term bases for the evaluations in Section 11.0. None of the data is changed, it is only re-located.

Additional revisions to Appendix 11C have been made to 1) revise secondary side parameters for the replacement of steam generators at NAPS (FN 94-010), 2) administrative changes to remove references to Units 3 and 4 (FN 94-009), and 3) various editorial changes (FN 98-038). None of these changes were necessary to Appendix 11C and are being removed by this change package. The information being removed from Appendix 11C regarding the replacement steam generators at NAPS is contained elsewhere in the UFSAR.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves the designation of the original 10CFR50, Appendix I analysis as historical and the relocation of information regarding the current radiological assessment of the expected plant effluents in the UFSAR, it does not involve physical changes to the facility or the manner in which the facility is operated. Therefore, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

#9 Revise Section 12.1.2.5 to state the minimum water height above stored fuel as 23 feet. Technical Specification 3.9.11 states that "At least 23 feet of water shall be maintained over the top of irradiated fuel assemblies seated in the storage racks." This requirement exists from the original issue of the NAPS Technical Specifications. This change to the UFSAR makes the UFSAR and Tech Specs consistent and avoids potential design basis confusion regarding this requirement. Per the Bases of TS 3.9.11, "The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the accident analysis." Also, Calculation PA-0054 calculates the surface dose rates based on water shielding of a spent fuel assembly. At 7.5 feet of water shielding, the expected dose rate is 3 mR/hr. Therefore, the reduction of the water height (stated in the UFSAR) from 26 to 23 feet above stored fuel assemblies in the spent fuel pool has no safety or radiological concerns.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the requires water height above stores spent fuel (as specified in the Technical Specifications) into the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

#10 Correct the shielding computer code references in Section 12.1.2.11 to include GAMTRAN1. Calculations 12050-RP-140 and 13075-PRB-010 performed the shielding review calculations in response to the requirements of NUREG-0578. The calculations were conducted using the Stone & Webster Engineering Corporation GAMTRAN1 computer code. The ACTIVITY-2 and RADIOISOTOPIC codes reported in the UFSAR were used in the preparation of source term inputs for GAMTRAN1. Various Virginia Power responses to the NRC regarding NUREG-0578 listed the ACTIVITY-2 and RADIOISOTOPIC codes as the calculational tools used in the post-TMI shielding evaluations. However, GAMTRAN1 is the Stone & Webster shielding computer code and was appropriately used to respond to the requirements of NUREG-0578 (2.1.6.b) and NUREG-0737 (II.B.2). GAMTRAN is identified as the shielding code used for the shielding design of NAPS in UFSAR Section 12.1.6.3. GAMTRAN1 is simply an updated version of GAMTRAN. This change is a clarification to Section 12.1.2.11 that properly distinguishes between the shielding code, GAMTRAN1, and the codes ACTIVITY-2 and RADIOISOTOPIC which were used in the development of the source term inputs for GAMTRAN1.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves clarifying the description of the computer code identified in the UFSAR for a shielding calculation and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

#11 Revise Section 12.1.3 to accurately reflect the use of protective coatings in the fuel, auxiliary, decontamination, and waste disposal buildings. The original coatings (polyamide-catalyzed epoxy resin paints or equal) are no longer exclusively used as coatings for potentially contaminated surfaces. Material Engineering Standard, STD-MAT-0004, Rev. 6, "Criteria for Selection of Coating Materials," provides the guidance necessary to determine the proper approved protective coatings based on the service level, materials, and environmental parameters. Service Level II is for areas outside containment subject to radiation and decontamination. Per STD-MAT-0004, Service Level II coatings must adhere to ANSI N5.12, "Protective Coatings for the Nuclear Industry" and ANSI N101.2, "Protective Coatings (Paints) for Light Water Nuclear Reactor Containment Facilities." The coatings identified in this proposed change, (epoxy, silicone alkyd, and urethane enamel) meet these requirements and are approved as "equals" to polyamide-catalyzed epoxy resin paints. This change does not prohibit the use of future "equals" approved by these applicable industry standards.

Certain surfaces within the fuel, auxiliary, decontamination, and waste disposal buildings are not subject to decontamination or are made of material that can be readily decontaminated without the use of protective coatings. As a result, not all surfaces in these areas have protective coatings applied. It would be incorrect to refer to "all portions" of the ceilings, walls, floors, mechanical equipment, piping, and ventilation ducts as coated surfaces.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves providing a more accurate description in the UFSAR of the protective coating system and since the UFSAR included the phrase "or equal," this change does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

#13 Revise Section 12.1.6.2 to correct the mixed-bed demineralizer vessel wall thickness and to more clearly identify the basis for the source terms used. Calculation RP-11715-A143 performed the shielding calculation for the mixed-bed demineralizer. The calculation used Surry source data corrected to a NAPS power level of 2774 MWt. Table 11.1-14 shows values that were corrected (via power level ratios) to a NAPS power level of 2900 MWt which is consistent with the uprated power level stated in the UFSAR. The 4.5% increase in source term due to uprated conditions would not be significant in the shielding calculation RP-11715-A143 since the increase would be attenuated through the calculated 4.5-foot thick concrete shield wall. The resulting difference would be negligible.

Specification NAS-71 specifies the wall thickness of the mixed-bed demineralizer ion exchange vessel as 5/16" not 1/4". This correction (increase) to the vessel wall steel thickness stated in the original FSAR is conservative with respect to shielding concerns and is revised in order to provide an accurate description of this vessel.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description in the UFSAR of the mixed bed demineralizer source term used and the actual vessel wall thickness and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

#14 Calculation 14938.11-URB-008 and Westinghouse Letter NAW-732, dated 7/23/71, identifies the data provided in Table 12.1-3. This data is the same corrosion product activity data as is in UFSAR Table 11.1-6. Apparently, the original presentation of this data in the FSAR was in error, in that the exponents were left off of the numerical values. The subsequent UFSAR revisions didn't identify or correct this error. This is a typographical/transcription error and requires correction. This portion of this change is editorial.

The temperature conditions stated in Table 12.1-3 are at 500°F. As stated above, this data for the corrosion product activities is identical to the values in Table 11.1-6 which is based on a temperature of 577°F per Table 11.1-5. The 577°F value is verified by the Westinghouse letter, NAW-732, that is the source document for these numbers.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting the temperature corresponding to the conditions of the calculation (and various typographical errors) in the UFSAR Table 12.1-3 and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

#15 Revise Section 3.1.52.2 to reflect the use of additional shielding and barricades as radiological control measures in the areas adjacent to the fuel transfer canal wall. Work areas adjacent to the canal wall were shielded for personnel access protection during actual fuel transfers. Shielding design criteria were employed in the determination of wall thickness in the fuel transfer canal. The construction of the walls utilized fitted block which allows some radiation streaming from the block joints into the adjacent areas. The radiation levels resulting from this streaming are unacceptable high. Therefore, per procedures 1/2-OP-4.1, barricades are used to limit personnel access in these areas. Additionally, supplemental shielding is used in order to reduce the radiation levels at the streaming locations. This change to the UFSAR is proposed in order to more accurately state the protective measures in place during fuel transfers. These additional radiological control measures are implemented in accordance with the station Radiological Protection Program which ensures compliance with 10 CFR Part 20 requirements.

The proposed change involved physical changes to the facility regarding the placement of barricades and also involves a procedural change, both of which are intended to remove a potential radiological hazard. A high radiation area in specified areas of the station during fuel transfer, will not cause any SSC failure that could initiate any design basis accident. During fuel transfer, the only accidents to be considered would be the fuel handling or loss of shutdown cooling accident. The consequences of these accidents would not be affected by radiological protection measures that prohibit access to high radiation areas during periods of fuel transfer. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change involves revising the description of the radiological protection measures stated in the UFSAR for the area around the fuel transfer canal wall and does not involve the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected and the requirements of 10 CFR 20 are maintained, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary Non-editorial Items:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed
non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-21

Description

ET No. SE-99-023, REV. 0

In an effort to reduce the seasonal heat stress on various equipment in the EDG rooms, it is desired to lower the water stand-by temperatures for the Emergency Diesel Generator Engines during warm weather months, but maintain a temperature level that will meet the Tech Spec and UFSAR start requirements. This ET will discuss the acceptability of reducing these temperatures from the normal temperature range of 130-135° F for the jacket water, air cooler and lube oil during standby condition. The Temporary Modification will lift a lead to the jacket coolant low temperature alarm.

Summary

The two temperatures listed under Part A.7 will be monitored hourly until a new equilibrium temperature has been reached. After the temperatures have stabilized, and remain constant +/- 2 degF for 8 hours, the frequency can be moved to twice a shift during the normal Safeguards Operator rounds per 1 / 2-LOG-6F. The 1-LOG-14 will be the formal tracking mechanism that will ensure the above temperature requirements are met per the Required Actions section of ET No. SE-99-023, REV. 0.

Loss of Offsite Power to the station, section 15.2.9, is the only applicable accident analyzed per the SAR. This activity will not affect the ability to mitigate a Loss of Offsite Power to the station, or any other accidents as described in the UFSAR. Reducing the standby temperatures and lifting the lead on the jacket coolant alarm circuit per the TM, will have no effect on the ability of the Emergency Diesel Generator to perform its design function. The temperature changes and the TM will not impact the Emergency Diesel Generator's ability to start and pick up the required emergency loads, within the required 10 second time period under all accident conditions.

The jacket coolant temperature reduction during the warm weather months will only delay the changing of the AMOT valve position. The AMOT valves determine if coolant passes through the radiators or recirculates though the engine until design control temperature is reached in the jacket coolant system and the air cooler system. This will not adversely impact the combustion process or damage any diesel engine components as long as ambient temperature is maintained above 70 degF. This will also have no impact on the required start time of the engine, or the ability for the Emergency Diesel Generator to accept the required emergency loads.

The resulting reduction in lube oil temperature, caused by the reduction in the heat added by the jacket coolant system will not adversely affect the lubrication properties of the lube oil or damage any diesel engine components, as long as, the temperature to the engine is maintained at or above 110 degF. Also, the lube oil viscosity will be low enough, so that proper drainage back to the sump can occur through the small clearances in the lower crankshaft bearings. If the lube oil viscosity is not maintained low enough, the oil could migrate to the upper crankshaft, which in turn potentially cause exhaust stack fires or worse, hydraulic lockup. Maintaining lube oil temperature to the engine at or above 110 degF will have no impact on the required start time of the engine, or the ability for the Emergency Diesel Generator to accept the required emergency loads.

The Emergency Diesel Generator Keepwarm System and Low Jacket Coolant Alarm are not addressed in the Technical Specifications. As long as the above temperature limits are maintained, the Emergency Diesel Generator reliability, and design function will be unaffected; therefore, an unreviewed safety question does not exist.

99-SE-OT-22

Description
UFSAR Section 6.2.4.2 FN 99-036
The change is a correction to UFSAR section 6.2.4.2 which describes the hydrogen recombiner piping tapping off the containment vacuum piping downstream of the CV trip valves, when it is actually upstream of the CV trip valves.

Summary
The purpose of this safety evaluation is to evaluate the correction of a statement in UFSAR Section 6.2.4.2 (Containment Isolation System – System Design). The statement describes the Containment Atmospheric Cleanup System suction piping tapping off downstream of the Containment Vacuum Pump suction trip valves (outside the penetration isolation boundary). However, the Containment Atmospheric Cleanup System "as built" piping actually taps off upstream of the Containment Vacuum Pump suction trip valves (inside the penetration isolation boundary).

The incorrect statement is contained in a description of the containment isolation arrangement for the Containment Vacuum Pump suction lines. The actual "as built" and designed arrangement is correctly described in another portion of UFSAR Section 6.2.4.2, which specifically describes the containment isolation arrangement of the Containment Atmosphere Cleanup System suction lines. UFSAR Section 6.2.5 (Containment Atmospheric Cleanup System) also provides a description that correctly describes the suction line arrangement of a common containment penetration with the Containment Vacuum Pump – each with its own dedicated set of Containment Isolation Valves. UFSAR Table 6.2-37 (Major Piping Penetrations through the Reactor Containment Structure) also collaborates the proper arrangement by listing the Hydrogen Recombiner suction line and its set of Containment Isolation Valves as an approved isolation arrangement.

The change to the errant UFSAR statement to correctly describe the "as built", designed, and approved piping and isolation valve arrangement is considered an administrative description error. The other descriptions of the arrangement in the applicable UFSAR Sections references described above, coupled with the treatment of the Containment Atmospheric Cleanup System suction and discharge trip valves as Containment Isolation Valves in Technical Requirements Manual Section 5.1, support this conclusion.

The correction of the UFSAR statement does not create an Unreviewed Safety Question for the following reasons:

The change affects an errant statement in the UFSAR regarding the configuration of the Containment Atmospheric Cleanup System suction lines. The correct configuration of the piping arrangement is not an accident or malfunction initiator. Configuration of the line does not cause an interaction with the RCS or Steam Generators that could initiate an accident. Likewise, the correct configuration does not affect the isolation valve design in a manner that would interfere with the ability of the valves to provide containment isolation when required. Additionally, the arrangement ensures that the cleanup system will be available for use when required, with minimal challenge to the Containment isolation boundary. Therefore, the probability of accident or malfunction occurrence is not increased.

The correct "as built" arrangement does not impact the performance of the individual Containment Isolation Valves for the common penetration. The arrangement ensures proper containment isolation, when required, and proper availability of the cleanup system (including single failure consideration for both functions). Both functions serve to mitigate the consequences of the applicable evaluated accidents. The design and function of the system and components is not changed. As such, the consequences of evaluated accidents and malfunctions are not increased.

The UFSAR statement correction does not involve any modification to the associated components, nor does it change any system or component operational methods. As such, no new failure mechanisms or scenarios are introduced. Therefore, the possibility of an accident or malfunction of a different type is not created.

The penetration configuration including its previously approved isolation arrangement and components will not be changed by the correction of the errant statement. Since no modifications or changes in operational methods are introduced, there are no changes in the function or performance capability of the isolation and cleanup systems. Therefore, there is no reduction in the Technical Specification margins of safety of the applicable LCOs.

99-SE-OT-23

Description
North Anna UFSAR change request # FN 99-008
UFSAR change request FN 99-008 contains a list of many changes, some of which are editorial in nature, which need to be corrected or enhanced in the UFSAR sections that discuss North Anna's Safety Injection System. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's SI system.

Summary

The following editorial/clarification changes are proposed (identified by change item subnumber). These do not affect any SI system component or any other SSC operation or performance. These changes do not result in an unreviewed safety question. They are editorial changes only and therefore, do not impact the margin of safety or change the consequences of an accident as described in the UFSAR.

Change Item Sub # 2
Reword a statement in Section 3.1.33.2 to clarify that the tests, which verify that the SI pumps deliver the required discharge heads, are different than the tests that verify automatic actuation of the SI system components upon receipt of a test signal. The SI pump breakers are placed in the test position during the performance of 1/2-PT-57.4, Safety Injection Functional Test, and the pumps are not actually started. Periodically and during an outage, the HHSI and LHSI pumps are tested to verify that the pumps attain required discharge heads.

Change Item Sub # 3
Correct the mark number designations in Table 3.9-2 for the low-head SI to the RCS hot legs MOVs, the low-head SI to the RCS cold legs MOVs, and the valves that isolate boric acid between the BAT and the BIT. Also, include MOV-890D, the LHSI reactor coolant system cold leg injection MOV, in the table. Table 3.9-2, "Types of Pumps and Valves - Westinghouse Scope," currently indicates the wrong MOV mark numbers for the low-head SI to the RCS hot legs and low-head SI to the RCS cold legs. The correct mark numbers for these MOVs, MOV-890A and B for the hot legs and MOV-890C and D for the cold legs, are correctly indicated in Table 6.2-53 and Drawings 11715/12050-FM-096A, Sheet 2. Table 3.9-2 also indicates that TCV-884 isolates boric acid from the BAT to the BIT. However, as shown on Drawings 11715/12050-FM-096A, Sheet 3, the correct mark number is TV-884C. The proposed revision resolves conflicting technical information in different sections of the UFSAR and also corrects the mark numbers for valves not specifically discussed in other UFSAR sections. The intent of the original statement is not changed, because the types of pumps and valves within the scope of Westinghouse continue to be described, and no design basis information or commitments are changed. Therefore, these proposed changes are acceptable.

Change Item Sub # 5
Table 3.11-1, "Valves in the Reactor Coolant Pressure Boundary (Westinghouse Scope)," does not identify the specific valve suffices (C, D) for the BIT containment isolation valves (MOV-1867) or all the specific valve suffices (C, D) for the LHSI cold leg injection valves (MOV-1890). This table is inconsistent with Figure 6.3-1 in both the original FSAR and drawing series 11715-FM-096A and 096B. FSAR Figures 6.3-1 and 6.3-2 were FM Drawings 11715-FM-41A and 41B, "Safety Injection System." The information on FSAR Figures 6.3-1 and 6.3-2 are now represented in drawing series 11715-FM-096A and 096B and indicates the correct valve suffices. Westinghouse System Description, SD-VRA-200/D, also identifies these valves as being Westinghouse-supplied. The specific valve suffices will be added to MOV-1867 and MOV-1890 to accurately represent the SI system. Also, FSAR Figure 6.3-2 indicates the valve identification for the RCS cold-leg check valves as 6-C58; whereas, the UFSAR indicates the valve identification as 5-C58. The proposed changes do not change the intent of the original statement, because the Westinghouse scope valves in the reactor coolant pressure boundary will be described accurately.

Change Item Sub # 6
Change the statement in Section 3A.1.2, which indicates that recirculation safety injection is not required until after the refueling water storage tank is empty, to be consistent with Section 6.3.2.2.2 and reflect the actual RWST level that is present when the recirculation phase of accident recovery is commenced following a LBLOCA. This change corrects an inconsistency between two sections of the UFSAR. Currently, Section 3A.1.2 indicates that recirculation safety injection is not required until after the refueling water storage tank is empty. This statement is incorrect and inconsistent with Section 6.3.2.2.2, which states, "...the injection mode of operation following a LOCA is terminated before the RWST is completely emptied, all pipes are kept filled with water before recirculation is initiated."

The continuous action page for 1-E-3 directs the operator to transfer to cold-leg recirculation if the RWST level decreases to less than 23%, and that transfer occurs automatically if the level decreases to less than 20%. If the safety injection pump suction is not switched from the RWST to the sump prior to the RWST becoming empty, the operability of the SI pumps would be in jeopardy. The actual switchover from the RWST to the containment sump for SI pump suction ensures that adequate NPSH is available from both the RWST and the containment sump. The proposed revision resolves conflicting technical information in different sections of the UFSAR and also reflects actual plant operation. The intent of the original statement is not changed and no design basis information or commitments are changed. Therefore, the proposed change is acceptable.

Change Item Sub # 7
Remove the redundant and misleading statement in Section 6.3.2.1.1, which indicates that the accumulators are located outside the secondary shield boundary that protects them from missiles. Section 6.3.2.1.1 discusses the accumulators. There are two redundant statements in Section 6.3.2.1.1: one states that the accumulators are located outside the missile barrier and the other one indicates that the accumulators are located outside the secondary shield boundary that protects them from missiles. The last statement is confusing because the term "secondary shield boundary" is not defined or used elsewhere in the UFSAR. Removing this redundant and confusing statement is acceptable, because the information about the location of the accumulators is still discussed in Section 6.3.2.1.1.

Change Item Sub # 14
Revise the statement in Section 6.3.2.1.5 that discusses the percentage of allowance permitted for bending of ECCS piping to clarify that the allowance for bending is "up to 8%" not just "8%" as currently indicated. The original intent the statement being revised was to explain the increase in the minimum wall thickness' determined by the USASI Code formula found in the ANSI B31.7, 1969, Code for Pressure Piping were increased. Currently, the UFSAR indicates that wall thickness' were increased from the ANSI thickness to allow for a 12.5% manufacturing tolerance and an 8% allowance for bending. As indicated in NAS-290, ANSI B31.7-1969, and ANSI B3.1-1967, the required allowance is dependent on the pipe size, schedule, and bend radius, and is not one consistent value (percentage). For the ECCS piping installed at North Anna, the required allowances for bending vary up to 8%; they all have an allowance for bending of 8% or less.

Change Item Sub # 15
Clarify the sentence in Section 6.3.2.2.5 that discusses routine servicing and maintenance of ECCS equipment, to indicate that routine servicing and maintenance may be performed on-line as well as during refueling and maintenance outages. Section 6.3.2.2.5, "Limiting Conditions for Maintenance During Operation," discusses the design philosophy for testing active components. One of the statements in this section states that the high-head/low-head safety injection system is designed so that maintenance of these components is possible during operation without impairment of the safety function of the system. The subsequent sentence states that routine servicing and maintenance of equipment of this type (ECCS) would "generally be scheduled for periods of refueling and maintenance outages." This last sentence is misleading because it implies that the servicing and maintenance of ECCS equipment is only performed during maintenance and refueling outages and not during on-line operation. This is incorrect because the "Online Testing Program" controls the performance of routine servicing, and maintenance of the ECCS

equipment during on-line operation. Maintenance of an active component will be permitted if the remaining components meet the minimum conditions for operation as allowed by the Maintenance Rule and the Technical Specifications. Section 6.3.2.2.5 will be clarified to indicate that on-line testing of ECCS equipment may be performed.

Change Item Sub # 17
Change the indicated results in Section 6.3.3.8.1 for the accidental depressurization of the Main Steam system to be consistent with the assumptions and results of the analysis presented in UFSAR Section 15.2.13 and the current analysis of record. On March 11, 1985, Virginia Power requested amendments to the Technical Specifications to allow a reduction of the boron concentration in the BIT and the boric acid system from 11.5 wt % to 7.4 wt %. Prior to submitting the request for the license amendment, re-analysis of the steamline break accidents discussed in Chapter 15 of the UFSAR was performed to determine the impact of the proposed change. The results of the re-analysis indicated that there was no longer "no return to criticality," but there was "no departure from nucleate boiling." Technical Specification Amendments 68 and 54 were issued to North Anna Power Station Units 1 and 2 on September 9, 1985, and Chapter 15 (Section 15.2.13) was revised to reflect the re-analysis results. Chapter 6 was not revised at that time to reflect the re-analysis results.

Analysis of Record (AOR) Calculation SM-0914, Rev. 0, "North Anna RETRAN Model Version 1 Main Steam Line Break Analysis," and supporting Safety Evaluation 95-SE-OT-14 documents that the transient does show a return to critical conditions; however, all of the ANS Condition II transient acceptance criteria are met. The proposed change provides consistency between two sections of the UFSAR and the AOR for the Main Steam Line Break. This change also reflects the current licensing basis, and, therefore, is acceptable.

Change Item Sub # 20
Change a reference in Section 6.3.3.12 from "15.4.1.2" to "15.4.1.5" to correctly indicate the section that discusses the containment backpressure used for the 10 CFR 50.46 ECCS analysis. Section 6.3.3.12, Minimum Containment Pressure Analysis, currently indicates that the containment backpressure used for the 10 CFR 50.46 ECCS analysis is presented in Section 15.4.1.2. Originally, Section 15.4.1.2 did discuss the use of containment backpressure in the ECCS analysis. However, in UFSAR Revision 23, the discussion of containment backpressure was relocated from Section 15.4.1.2 to Section 15.4.1.5. Therefore, changing the reference from Section 15.4.1.2 to Section 15.4.1.5 accurately indicates the location of the discussion of the containment backpressure used for the 10 CFR 50.46 ECCS analysis and does not change the intent of the original statement.

Change Item Sub # 21
Identify Section 14.1 and most of Sections 6.3.4.1 through 6.3.4.3 as HISTORICAL, because these sections discuss the pre-operational test program. Also, change the verb tense to the past as necessary. Section 14.1 and most of Section 6.3.4 discuss the pre-operational test program which included tests, adjustments, calibrations, and system operations necessary to ensure that initial fuel loading, initial criticality, and subsequent power operation could be safely undertaken. The intent of the statements that have verb tense changes is to describe the ECCS initial flow system tests that were performed during pre-operational testing. The proposed changes do not change the intent of the original statement, impact any design basis information, or change a commitment.

Change Item Sub # 23
Rearrange records in Section 6.3.4 and create a new Section that describes periodic system tests. Section 6.3.4, Tests and Inspection, contains a lot of information about various tests including pre-operational, component, and system tests. As described in Subnumber 21, the information discussing the pre-operational tests will be indicated as historical. This change will create a new section that describes the ECCS system tests that are performed. No new information is being added, except an introductory statement, and no changes are made to the current statements. This change does not alter the intent of Section 6.3.4, change a commitment, or affect the design basis of the ECCS, and, therefore, is acceptable.

Change Item Sub # 34
Correct the titles of Figures 6.3-16 and 6.3-17 to be consistent with discussion, provided in Section 6.3.3.1.4, regarding of the effect an LHSI valve malfunction will have on ECCS flow. Section 6.3.3.1.4, Effect of LHSI Valve Malfunction on ECCS Flow, discusses the operation of the low-head safety injection pumps during an accident. As indicated in the text, a simplified schematic of the LHSI system, Figure 6.3-15, is provided for purposes of the discussion. Figure 6.3-15, Simplified Schematic Low Head Safety Injection System, provides specific points (A, B, C, and D) which are referred to in the discussion. The first line of the titles of Figures 6.3-16 and 6.3-17 are, "Pressure at Point B as shown on Figure 6.3-14." Figure 6.3-14 is the wrong figure. The discussion in Section 6.3.3.1.4 refers to the correct figures, but the titles of the figures are incorrect. These figure titles have been incorrect since the original FSAR and will be corrected to reference Figure 6.3-15.

Change Item Sub # 35
Change the indicated reference section for the definitions of terms used in Appendix 6A, from Section 3.1.1 to Section 3.1. Section 6A.1, "Definitions of Terms," of Appendix 6A, "Single Failure Capability," refers the reader to Section 3.1.1.1 for the definitions of terms used in that appendix. Section 3.1.1 is titled, "Quality Standards and Records," and does not contain any definitions. Section 3.1, "Conformance with AEC General Design Criteria," defines the terms that are pertinent to single-failure criteria. Changing the indicated reference directs the reader to the correct section containing the definitions and maintains the intent of the original statement.

Change Item Sub # 36
Delete the statement, "(The orifice does not appear on Reference Drawing 8 but is located in the line identified as 1 in.-GN-7-152.)," from Section 9.5.10.2. Currently, Section 9.5.10.2 indicates that the restriction orifice that limits the hydrogen to the supply header in the Auxiliary Building is not shown on Reference Drawing 8, 11715-FM-105A. However, Drawing 11715-FM-105A, Sheet 2, Revision 28, does show the orifice and has shown this orifice since Revision 3, when the orifice was added per E&DCR P-1646. Removing this statement accurately reflects the information provided in Reference Drawing 8 and does not change the intent of Section 9.5.10.2.

Change Item Sub # 37
Section 6.3.2.1.1 discusses the design and operation of the accumulators. A discussion of how accumulator operability is covered by the Technical Specifications is provided in this section. Also, there is an additional statement about how the Technical Specifications permit one accumulator to be out of service for a limited period of time without added restriction on normal plant operation. There is no value added by this additional statement and it is misleading because although the Technical Specifications allow plant operation while in a LCO, being in an LCO condition is an added restriction on plant operation. The plant design and licensing basis is as indicated in the UFSAR and the operating license (including the Technical Specifications) among other documents. It is not necessary to have the specific requirement of the Technical Specifications indicated in the UFSAR. Therefore, the statement about how Technical Specifications allows one accumulator to be out of service will be removed.

Change Item Sub # 38
Section 6.3.2.1.4.6, Single Failure of ECCS Valves, provides a description as to how each of the ECCS valves meets the single failure criteria. The discussion for MOV-1865A, B, and C is confusing due to the structure of the sentence and could lead the reader to believe that the MOVs are blocked open once the reactor coolant pressure is above the SI unblock setpoint of 2000 psig. This is incorrect because Technical Specification 3.5.1 requires that the MOVs be blocked open when pressurizer pressure is above 1000 psig. This discussion will be revised to clearly indicate that the valves are blocked open in accordance with the Technical Specification requirements so that they meet the single failure criteria when the reactor coolant pressure is above the SI unblock setpoint.

Summary:

The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, or a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated. Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regards to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed (identified by change item subnumber). The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these items is discussed

Change Item Sub # 1

Add a footnote to Table 1.3-2 to indicate that the values presented in the table are the original values provided to the NRC for comparison prior to initial licensing; however, the values may vary from the current design values for the installed equipment. The original intent of this table was to present a summary of the design and operational data on the engineered safety features for North Anna Units 1 and 2, together with comparable data derived from the FSARs for Surry Units 1 and 2 and Beaver Valley Unit 1. This comparison was made because the Surry and Beaver Valley units are closely related technically to the North Anna units and serve as examples of Stone & Webster facilities that received operating licenses before the North Anna units. The proposed footnote identifies that there may be a deviation between current design and operation and the description as presented in the UFSAR.

The proposed revision does not remove the discussion of the design data comparison, but states that the original design data may not accurately represent the installed equipment. Therefore, this change does not modify the intent of the design comparison description presented in the original UFSAR statement, impact any design basis information, or change a commitment. Since the proposed change does not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the proposed change does not alter the operation or performance of any RS system component or any other SSC's important to safety, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report being created. No analyses or setpoints are affected by this change, subsequently the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 4
Change Table 3.9-2 to indicate that the size of the LHSI pump inlet valve from the RWST on Unit 1 is 12 inches, and on Unit 2 the valve is 10 inches. The purpose of Table 3.9-2, "Types of Pumps and Valves - Westinghouse Scope," is to indicate the mark number, valve type, and valve size for Westinghouse supplied valves. A description of the line in which the valves are installed is also provided. As shown in EDS and Drawings 11715/12050-FM-096A, Sheet 1, the Unit 1 MOVs from the RWST to the LHSI pumps inlet, MOV-1862A and B, are 12 inches and the Unit 2 MOVs from the RWST to the LHSI pumps inlet, MOV-2862A and B, are 10 inches. The sizes of the lines are the same on both units, but reducers are installed to accommodate the smaller valves. The additional losses due to the reducers are negligible as indicated by the periodic test results for the LHSI pumps, which operate at the appropriate point on their respective head curves.

Correcting the information in Table 3.9-2 to accurately reflect the installed valves does not change the intent of the table, impact any design basis information, or change a commitment, and is, therefore, acceptable. This change does not affect the operability of the valves or alter the performance characteristics of the safety injection system and therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. This change does not add any new equipment or alter the manner in which the SI system or any other SSC's important to safety are operated, therefore, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 8
Add additional information to Section 6.3.2.1.4.1 to clarify and accurately describe the seating design of all SI motor-operated valves. Clarify the statement in Section 6.3.2.1.4.2 to indicate that the stem packing and gasket of the stainless steel valves, 2-inch and larger, are similar to those described for the MOVs. Also, indicate that some of the smaller valves have been of the packless design since original construction or have been replaced with packless valves. The original intent of the statements being revised in Section 6.3.2.1.4.1, Motor-Operated Valves, was to describe the seating designs of the SI system MOVs and to indicate how they functioned. Currently, the UFSAR indicates that the MOV designs are either of the parallel disk or flexible wedge design and that these designs have to work only against the frictional component of the hydraulic imbalance on the disk and the packing box friction. The statement about the frictional component is true; however, there are additional seating designs. The additional designs and the statement that the valves are analyzed and tested continues to ensure that the MOVs operate under the worst-case accident conditions. The statement discussing manual gate and globe valve stem packing and gaskets in Section 6.3.2.1.4.2 needs to be clarified to eliminate confusion since only valves 2-inches and larger have stem packing and gasket designs similar to those for the MOVs described in Section 6.3.2.1.4.1. Some of the smaller valves have been of the packless design since original construction. Other smaller valves, originally of the packless design, have been replaced with valves that are not packless. For example, EWRs, 90-354, 90-354A and 90-192 along with DCP 93-134 and supporting safety evaluation 93-SE-MOD-017, replaced some packless kerotest valves with valves of similar function that have packing.

This change does not impact the performance of the SI system MOVs or any other SI system components so the consequences of previously analyzed accidents is unchanged as a result of this activity. There is no alteration to the parameters within the plant is normally operated or in the setpoints that initiate protective or mitigative actions and the SI system MOVs are not accident initiators; therefore, the probability of any previously analyzed accident or the possibility of a new or different type of accident is not created. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced. Therefore, an unreviewed safety question does not exist.

Change Item Sub # 9
Revise the description of the "hammer blow" feature, discussed in Section 6.3.2.1.4.1, to be consistent with EPRI document NP-6660-D, "Application for Motor-Operated Valves in Nuclear Power Plants." The original intent of the statements being revised was to describe the "hammer blow" effect for the ECCS

motor-operated valves. The proposed change provides a more accurate description of the "hammer blow" feature, as presented in EPRI document NP-6660-D, "Application for Motor-Operated Valves in Nuclear Power Plants." The proposed clarification does not change the intent of the original statement, impact any design basis information, or change a commitment, and, therefore, is acceptable. Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of "hammer blow" in the UFSAR, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 10
Change Section 6.3.2.1.4.4 to indicate that both accumulator check valves are not required to be tested when the RCS is being pressurized during normal plant heatup. Section 6.3.2.1.4.4, Accumulator Check Valves (Swing-Disk), states that the check valves are tested for leakage when the RCS is being pressurized during the normal plant heatup operation and there is a stable differential pressure of 100 psi or more across the valve. Two accumulator check valves of the swing-disk type are located in the accumulator discharge line. 1/2-PT-139, Valve Inservice Inspection (High and Low Pressure Interface Leak Test), originally leak tested both accumulator check valves on each accumulator. However, periodic tests 1/2-PT-139 were revised at a later date to leak check only one of the accumulator discharge check valves in accordance with Revision 7 of the Inservice Testing (IST) Program Plan for Pumps and Valves.

Revision 7 to the IST Program Plan allowed for only leak testing one of the accumulator discharge line check valves, because all the valves are normally closed, and upon depressurization of the RCS during a LOCA, they open to provide flowpaths from each of the SI accumulators to the RCS cold legs. The justification further explained that there is no specific safety function for the valves to close following discharge from the associated accumulator, and since one of the valves is leak tested, it is not necessary to test the other valves in the closed direction.

The proposed change reflects current approved testing in accordance with the IST Program Plan and does not alter the original intent of Section 6.3.2.1.4.4. Since the proposed change does not alter the ability of the accumulators to discharge into the RCS in the event of a LOCA, and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the SI accumulator check valves in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 11
Revise a statement in Section 6.3.2.1.4.5, to indicate that the wetted parts of the valve stem and spring adjustment assemblies for manual globe and gate valves are of corrosion resistant material or are isolated from the system fluids by a bellows. The original intent of Section 6.3.2.1.4.5 was to describe the design and operation of the relief valves located in the ECCS system. Currently, part of the description of the ECCS relief valves states that the relief valve stem and spring adjustment assemblies are isolated from the system fluids by a bellows seal between the valve disk and spindle. As a result of a review of the Vendor Technical Manuals for the relief valves installed in the ECCS, it was determined that most of the ECCS relief valves do not incorporate this bellows seal design. Specifically, none of the valves besides the 1845 series valves have a bellows seal. This is acceptable because all of the wetted parts of the ECCS relief valves are corrosion resistant. Also, a bellows seal valve design is typically specified when the expected back pressure of the relief valve is significant (as in the case of a water relief valve where flashing in the relief valve discharge line is expected). The ECCS relief valves are not located in lines that are subjected to high back pressure or flashing and therefore, do not require a bellows seal design.

This change does not eliminate the discussion of the ECCS relief valves design and operation, but corrects the description to match the installed valves. No impact on any design basis information or any change to a commitment is proposed by this change. Therefore, this change is acceptable. Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the SI system relief valves in the UFSAR and does not involve physical changes to the facility or the manner in which the SI system or any other system in the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 12

Add relief valves and flow elements to the sentence in Section 6.3.2.1.5 that discusses the flanged connections in the SI system that are not welded. Section 6.3.2.1.5 discusses ECCS piping. The original intent of revising the statement was to indicate those piping joints that are not welded. In addition to the pumps flanged connections that are not welded, the FM drawings for the SI system identify relief valves and flow elements in the SI system that have flanged connections. The Vendor Technical Manuals for the relief valves and flow elements in the SI system also indicate that these components have flanged connections that are not welded. ASME Standard USAS B31.7-1969, "Nuclear Power Piping," and Specification NAS-290, "Specification for Piping Engineering and Design," allow the use of flanged connections. The proposed revision incorporates these components into the sentence discussing flanged connections, but does not modify the intent of describing the exceptions to welded joints presented in the original UFSAR. In addition, the integrity of the connections is unchanged as a result of this change. Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the SI system in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 13

Change the discussion of the reducing tees used in the ECCS piping to indicate that reducing tees are "normally" used when the branch size exceeds one-half of the header size. The original intent of this statement was to describe when reducing tees are used and currently indicates that reducing tees are always used when the branch size exceeds one-half of the header size. This statement is not a requirement delineated by Specification NAS-290, "Specification for Piping Engineering and Design," or the governing code, ANSI B31.7-69 with addenda through 1970. Although the practice of using reducing tees when the branch size exceeds one-half of the header size is normal, there are several cases in the SI system where they are not used. The original statement constitutes good engineering practice; although, it is not a requirement. The integrity of the system would not be affected by using standard tees and reducers in lieu of reducing tees. Changing the statement to indicate that reducing tees are "normally" used accounts for the current system piping configurations without affecting the system integrity or changing a commitment. Since the proposed change does not affect SI system integrity, involve physical changes to the facility, or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the SI system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 16

Delete the statements in Section 6.3.3.5 that discuss the effect on the net positive suction head of the low head safety injection pumps as a result of a 50 gpm leak resulting from failure of the shaft seal on one of the high head safety injection pumps. The low-head safety injection (LHSI) pumps take suction from either the RWST during the injection phase of a LOCA or the containment sump during the recirculation phase of a LOCA. The LHSI pump's NPSH is not affected by a charging pump shaft seal failure because of the suction source. During the recirculation phase of a LOCA, when the LHSI pumps and charging pumps are operating in series to supply the Reactor Coolant System; any charging pump seal leakage has the potential for reducing the containment sump inventory, which, in theory, could affect LHSI pump NPSH availability. However, the 50 gpm charging pump seal leakage is small, when compared with the containment sump volume during a LOCA. The statements being deleted are meaningless and confusing. The discussion of the effects of a leak resulting from failure of the shaft seal on one of the high-head safety injection pumps, provided in the previous sentences, is correct and will remain in the UFSAR.

Since the proposed change does not involve any changes to the way the LHSI pumps perform during accident conditions and the NPSH is unaffected, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the system in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 18

Correct the discussion in Section 6.3.3.10 describing the comprehensive testing program which demonstrated that ECCS components and associated instrumentation and electrical equipment that are located inside containment will operate for the period required under post-LOCA conditions. Section 6.3.3.10, Evaluation of the Capability to Withstand Postaccident Environment, states that a comprehensive testing program had demonstrated that ECCS components and associated instrumentation and electrical equipment that are located inside containment will operate for the period required in the combined post-LOCA conditions of temperature, pressure, humidity, radiation, chemistry, and seismic phenomena; and references WCAP-7744. WCAP-7744 describes the environmental test program that was performed; however, the test program verified that the safeguards equipment would operate satisfactorily during and following exposure to the containment post-accident environments of temperature, pressure, chemistry, and radiation but, did not evaluate equipment operability following seismic events. The seismic evaluation of Seismic Class I instrumentation and electrical equipment was performed and documented in WCAP-7817, "Seismic Testing of Electrical and Control Equipment." WCAP-7817 and the evaluation of Seismic Class I instrumentation and electrical equipment is discussed in Section 3.10.1.

The proposed revision resolves conflicting technical information in different sections of the UFSAR. The intent of the original statement is not changed, and no design basis information or commitments are changed. There is no impact on the performance of the safety-related and/or non-safety-related equipment in harsh environments following an accident since the current approved EQ program is unchanged as a result of this change. Therefore, the proposed change does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub # 19

Change the elevation in Section 6.3.3.10 for those motor-operated valves in the ECCS system that are required to operate following a LOCA and that are located in an area of potential flooding from 276 ft. 6 in. to 267 ft. 6 in. Section 6.3.3.10 currently states that the motor-operated valves (MOVs) in the ECCS that are required to operate following a LOCA, and that are located in an area of potential flooding, have their motor operators above Elevation 276 ft. 6 in. The MOVs being referred to here are those located in the safeguards building. There appears to have been a transposition error made in the original FSAR; because the Safeguards Building floor line is at the 267 ft. 6 in. elevation and all the ECCS MOVs required to operate after a LOCA are above the floor line. Also, the EZDs and the QDRs for the referenced valves indicate that the valves are not located in areas susceptible to flooding.

The proposed correction will accurately reflect the elevation above which the MOVs are located and will not change the intent of the original statement. There is no impact on the performance of the safety-related and/or non-safety-related equipment in harsh environments following an accident since the current approved EQ program is unchanged as a result of this change. Therefore, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub # 22
Change a statement in Section 6.3.4.2 to indicate that the anticipated maximum flow per low-head safety injection pump is 4180 gpm during the injection mode of operation following a LOCA and 4030 gpm during the recirculation mode of operation following a LOCA. The paragraph in which this statement is located discusses how the maximum flow criteria for the charging and LHSI pumps are based upon NPSH considerations. Table I of Calculation 11715-341N, Rev. 0, has determined that the LHSI pumps will deliver a maximum of 4180 gpm to the RCS cold legs during the injection mode of operation following a LOCA and 4030 gpm during the recirculation mode of operation following a LOCA. These values are used as an input to Calculation 01040.7910-US(B)-278, Revisions 1 and 2, the analysis of record (AOR) for containment response to a LBLOCA. The results of the containment response AOR, using the flow rates from Table I of Calculation 11715-341N, indicate that adequate NPSH margin exists for the LHSI pumps during recirculation and that the containment can be depressurized within 60 minutes using these flow rates. This change accurately reflects the current containment response AOR and, therefore, is acceptable. Since the proposed change accurately reflects the flow rates used in the accident analyses and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the LHSI pumps flows during and following an accident, and do not involve physical changes to the facility or the manner in which the facility is operated or the SI system responds to an accident, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 24
Revert the paragraph in Section 6.3.4.2 that discusses surveillance testing to the paragraph as it originally existed in the FSAR. The paragraph in the original FSAR discussed pre-operational testing. Also, indicate that this paragraph is historical. In the original FSAR, this paragraph discussed pre-operational testing. Specifically, the tests for the HHSI and LHSI pumps that were completed during the performance of 1/2-PO-36.3, "Safety Injection system Functional Test Pump Performance Verification," were described. UFSAR Change Request FN 94-050 changed this paragraph from discussing pre-operational testing to discussing current testing, without an adequate safety evaluation. The proposed change restores the UFSAR to its original state and accurately describes pre-operational testing of the LHSI and HHSI pumps. Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of pre-operational testing, identifies this description as historical, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety

analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 25
Delete Section 6.3.5.2.1, "Boron Injection Tank Pressure," from the UFSAR. The Boron Injection Tank (BIT) pressure transmitters and alarms were removed via EWR 90-027. EWR 90-027 and supporting safety evaluation 90-SE-MOD-035 were prepared, approved, and implemented, removing the Unit 1 BIT pressure transmitter 1-SI-PT-1934. EWR 90-027E was prepared, approved, and implemented, removing the Unit 2 BIT pressure transmitter 2-SI-PT-2934. EWR 90-027E stated that Safety Evaluation 90-SE-MOD-035 applied to Addendum E of EWR 90-027. UFSAR Change Request FN 92-126 was prepared for EWR 90-027 but was not implemented because it was not transmitted to the UFSAR Coordinator. Deletion of this section is appropriate because the pressure transmitters are no longer installed. This change revises the UFSAR to the approved words in FN 92-126. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 26
As a result of issues raised in Information Notice 88-23, "Potential Gas Binding of HHSI Pumps," it was determined that vent valves should be installed at critical points where gas could collect. The EWRs in the 88-330 series and supporting safety evaluation 89-SE-MOD-018 implemented the high-point vent modifications in the suction lines of the HHSI pumps and the discharge lines of the LHSI pumps. DCPs 94-170 (Unit 1) and 94-171 (Unit 2) and their supporting safety evaluations 94-SE-MOD-053 and 94-SE-MOD-075, respectively, installed additional LHSI vent valves. The safety evaluations supporting the modifications evaluated the probability and consequences of new and previously analyzed accidents and determined that an unreviewed safety question did not exist. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 27
Change the minimum operating pressure for the accumulators in Table 6.3-1 and Table 6.3-5 from 600 psig to 599 psig to be consistent with Technical Specification 3.5.1. Also, change the refueling water storage tank (RWST) volume in Table 6.3-5 from 450,000 gal to 466,200 - 487,000 gals to be consistent with Technical Specification 3.5.5 and the actual plant operating conditions. The original intent of Tables 6.3-1 and 6.3-5 was to describe the ECCS component parameters and the normal operating status of ECCS components for core cooling, respectively. Technical Specification LCO 3.5.1.d requires that while in modes 1, 2, and 3, each accumulator shall be operable with a nitrogen cover-pressure of between 599 and 667 psig. The bases for Technical Specification 3.5.1 states that the limits on accumulator volume, boron concentration, and pressure ensure that the assumptions used for accumulator injection in the safety analysis are met. Accordingly, Accident Analysis Calculation SM-993, "North Anna LBLOCA Analysis; 1981 Evaluation Model with BASH Code; Upflow and Downflow Configurations with the Chopped-Cosine Design Shape", assumes a minimum accumulator pressure of 579 psig. The Technical Specification limits are bounded by this value.

The current RWST volume of 450,000 is identified in the Westinghouse System Description, VRA 200/d, to be the usable volume. This volume may be correct; however, this value is being changed to represent the actual plant operating conditions and the Technical Specification values to ensure that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. As a result of Technical Specification Amendments 110 and 96, Technical Specification 3.5.5.a requires that the RWST contain a borated water volume of between 466,200 and 487,000 gallons. This contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

Changing these tables to match the Technical Specification value and the actual plant operating conditions does not change the intent of the original statement, impact any design basis information or accident analyses, or change a commitment. The proposed changes do not involve physical changes to the facility or require procedural changes. Since the accident analysis assumptions continue to be met and the results remain acceptable, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the minimum accumulator pressure and RWST operating volume, and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 28
Change the design head for the low head safety injection pumps in Table 6.3-1 from 225 ft. to 250 ft. Table 6.3-1, "Emergency Core Cooling System Component Parameters," currently indicates that the design head for the low-head safety injection pumps is 225 ft. at the design flow of 3,000 gpm. However, the Ingersoll-Rand Pump Curve for the NAPS LHSI pumps (N-472, N-473, N-474 and N-475) and the Westinghouse Safety Injection System Description show that the pump TDH at 3000 gpm is 250 feet. Changing the design head to a greater value is acceptable because at the lower head value, the required flow could not be obtained. Also, the change accurately reflects the installed equipment and the values used in current analyses. Since the proposed change does not involve physical changes to the facility or require procedural changes or affect the flow rate of the LHSI pumps during an accident, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting the description of the SI system in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 29
Add a note to Table 6.3-1 to indicate that the stroke times in the table are the original stroke times and they may be different from the current allowable valve stroke times. Table 6.3-1, "Emergency Core Cooling System Component Parameters," describes the maximum opening or closing time for different sized motor-operated valves in the ECCS. The proposed change distinguishes the original stroke time requirements from the current stroke times, because current valve stroke times are based upon safety system response and/or accident analyses and are considered when developing acceptance criteria to ensure that the valve performance does not degrade below the performance required by the safety system response requirements and/or accident analysis. The valves are tested and allowable stroke times are controlled in accordance with ASME Section XI, based on valve performance requirements as required by 10 CFR 50.55 (a)(g)(4). Therefore, the proposed revision incorporates information about the current testing requirements while maintaining the original design requirements. Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the system in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 30
Add a note to Table 6.3-6 to indicate that the individual leakage values are original design values and may be exceeded, as long as the "total" value for uncollected leakage outside containment from the ECCS recirculation loop and the recirculation spray subsystems does not exceed 900 cc/hr. The original intent of Table 6.3-6, "Maximum Potential Recirculation Loop Leakage External to Containment," as indicated in the text that directs the reader to this table, was to describe the total potential leakage from the recirculation loop and the sources that may contribute to the maximum potential leakage outside the containment.

Currently, ECCS leakage values are limited to 900 cc/hr to ensure that the offsite dose limits of 10 CFR 100 are met following a DBA. The value of 900 cc/hr is the sum of the potential leakage sources outside containment. Specifically, it is the sum of the total potential leakage from the RS subsystems, 241 cc/hr, indicated in UFSAR Table 6.2-42, "Recirculation Spray Subsystem Leakage Outside Containment," and the maximum potential leakage from ECCS components, 659 cc/hr, indicated in UFSAR Table 6.3-6, "Maximum Potential Recirculation Loop Leakage External to Containment."

Twice the allowed leakage of 900 cc/hr (1800 cc/hr) is used in the NAPS LOCA Dose Analysis (PA-0075). Calculation PA-0075 concludes that even with the assumed leakage value of 1800 cc/hr, offsite doses will remain within the limits of 10 CFR 100 and dose to the control room operator will be within the limits of GDC 19.

Therefore, based on the total leakage value of 1800 cc/hr assumed in the offsite dose analysis of record, it is apparent that individual leakage values for each leakage control component may exceed the leakage rate identified in the table, as long as the total leakage outside containment from the ECCS recirculation loop and the recirculation spray subsystems does not exceed 900 cc/hr.

The proposed footnote addition to Table 6.3-6 is acceptable because it does not change the original intent of the tables, impact any design basis information, or change a commitment. Since the proposed change does not involve physical changes to the facility or procedural changes, and the leakage value of 1800 cc/hr assumed in PA-0075 is unchanged, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No analyses are affected by this change, subsequently, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 31
Change Table 6.3-2 to indicate that the piping fabrication, installation, and testing code compliance requirements for the ECCS include the addenda requirements that are stated in the original piping specification, NAS-290, "Piping Section I Piping Engineering and Design Instructions." Also, remove the hydrotest pump from the list of pumps, which meet the ASME III, Class C, 1968 code requirements. The original intent of this table was to describe the code compliance requirements for the ECCS. Specification NAS-290, Rev. 6, "Specification for Piping Section 1 Piping Engineering and Design Instructions," dated January 30, 1980, is the design specification for the NAPS piping. On page 1-10 of NAS-290, the specification indicates that all Q1, Q2, and Q3 piping shall be in accordance with B31.7 (a). Page 1-12 of the specification indicates that the "(a)" refers to "ANSI B31.7-1969 and Addenda through 1970 - Nuclear Piping Code (ANSI B31.7)". A review of the documentation for the hydrotest pump (vendor drawings, tech manuals and spec sheets) has failed to find any reference to ASME III requirements for the hydrotest pump. Because the pump is not installed equipment and has no safety function; it is not classified as a safety-related component and is not required to be ASME III.

Changing the statement to accurately reflect the original piping specification and eliminating the hydrotest pump is acceptable, because it does not change the original intent of the statement: it only makes the statement accurate and complete. Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the SI system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 32
Revise the hydro pump relief valve setpoint in Table 6.3-4 from 700 psig to 900 psig. Also, change the capacity of the hydro pump from 20 gpm to 25 gpm. The original intent of Table 6.3-4 was to indicate the emergency core cooling system's relief valves with their capacities and setpoints. Table 6.3-4 currently indicates that the hydrotest pump relief valve has a setpoint of 700 psig and a capacity of 20 gpm. Setpoint

Change Request 79-06 and its supporting safety evaluation changed the relief valve setpoint from 700 psig to 900 psig, but did not update the UFSAR. The setpoint change basis stated that because the accumulator relief valve setpoint is 700 psig, the hydrotest pump relief valve setting of 900 psig would be an acceptable setting for back-up protection against overpressurization in case of a failure of the accumulator relief valve. Also, during the operating conditions that will be present when the hydro pump is in service, the relief valve setpoint is below the pressure rating of any piping protected by this relief valve.

Westinghouse E-Spec 676257 provides the specification for the hydrotest relief valves, 1-SI-RV-1893 and 2-SI-RV-2893, but, the valve data sheet is unreadable. However, nameplate data in DMIS for the valve indicates that the hydrotest pump relief valve's capacity is 25 gpm rather than 20 gpm. The capacity of 25 gpm at 900 psig is further verified by the following calculation:
$[(900+14.7)/(700+14.7)]*20$ gpm = 25.6 gpm. This is approximately 25 gpm and agrees with the nameplate data in DMIS. Therefore, changing Table 6.3-4 to accurately indicate a previously approved change does not alter the intent of the original table, and represents actual installed equipment. Since the proposed change does not involve physical changes to the facility or require procedural changes, and the hydrotest pump is non-safety related and not required during an accident, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the hydro test pump in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 33
Revise Figure 6.3-1 (Sheet 2 of 2), "Safety Injection System," to show the lines and valves that are used for venting and draining the accumulators. The purpose of Figure 6.3-1 (Sheet 2 of 2) is to provide a simplified drawing of the emergency core cooling system. Currently, the figure does not show the lines and valves that are used for venting and draining the accumulators. Section 6.3.2 states, "The ECCS is shown in Figure 6.3-1, Reference Drawings 1 and 2, and Reference Drawings 6 and 8." Reference Drawing 1, 11715/12050-FM-096A, "Flow/Valve Operating Numbers Diagram: Safety Injection System," shows the lines and valves that are used for venting and draining the accumulators. Because 1/2-OP-7.3, "Filling, Sluicing, Draining, Pressurizing, and Venting SI Accumulators," utilizes these lines and valves, and because they are discussed in the text portion of the UFSAR; Figure 6.3-1(Sheet 2 of 2) will be revised to include this information. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:
The above non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the recirculation spray system to perform its design function in the event of a DBA, nor is there any change in the likelihood that any credited equipment will fail to perform. The reported results for containment peak pressure, containment depressurization time, containment subatmospheric peak pressure, and doses for the control room and exclusion area boundary or low population zone are unchanged. As a result, the proposed non-editorial changes to the UFSAR do not

involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regards to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined to not represent an unreviewed safety question.

99-SE-OT-24

Description

Technical Specification Change Request No. 369

Technical Specification Change Request Package 369 will revise the following: (1) Surveillance Requirement 4.4.1.6.1 will relax the "drained-loop verification requirement" from two hours to four hours to allow additional time to establish a partial vacuum in the isolated and drained loop, and (2) Bases 3/4.4.1 will be clarified to acknowledge that RCP seal injection is initiated into the isolated and drained loop as a prerequisite for the vacuum assisted backfill technique.

Summary

The current Technical Specifications permit returning an isolated Reactor Coolant System (RCS) loop to service by either of two methods. The first method, when the loop is isolated but not drained, requires the isolated loop to be operated on recirculation flow for a specified period of time prior to returning the loop to service. This activity serves to equalize reactor coolant temperature and boron concentration among the isolated and operating loops. The second method, when a loop is isolated and drained, permits returning the loop to service by back-filling the loop from the active portion of the RCS volume through partially opened loop stop valves. Specific controls are also in place to ensure reactivity and coolant inventory control during the loop backfill evolution.

To avoid numerous reactor coolant pump (RCP) starts to eliminate the entrapped air when filling a drained loop, a partial vacuum may be drawn on the loop prior to back filling. However, RCP seal injection is required to permit establishing a partial vacuum in the isolated loop. Seal injection involves a low flow-rate injection (approximately 5 gpm) of borated water from the charging system into the isolated loop during the time period required to establish a partial vacuum in that loop and during the backfill evolution. Therefore, to facilitate the use of the vacuum-assisted fill technique and to eliminate a potential verbatim compliance issue associated will filling the "drained" loop, two changes to the Technical Specifications are being proposed: First, the Bases for Technical Specifications 3/4.4.1 are being modified to acknowledge that RCP seal injection is initiated into the isolated and drained loop as a prerequisite for the vacuum assisted backfill technique. Second, because establishment of a partial vacuum in the isolated and drained loop may require longer than two hours, the proposed Surveillance Requirement 4.4.1.6 relaxes the "drained-loop verification requirement" from two hours to four hours.

The implications of the proposed changes on the safe operation of the North Anna units have been considered. The considerations center on avoiding the possibility of an inadvertent and undetected introduction of under-borated water into an isolated loop prior to returning the isolated loop to service. The design and licensing basis focuses on restoring isolated and drained loops to service using borated water sources of known concentration to preclude the pre-condition for a Startup of an Inactive Loop (SUIL) accident.

Amendments 215 and 196 allow an initially isolated and drained loop to be returned to service by partially opening a loop stop valve and filling the loop in a controlled manner from the "active volume" of the RCS. Surveillance Requirement 4.4.1.6.1 requires the isolated loop to be verified as drained within two hours prior to opening a loop stop valve. This verification is procedurally controlled and performed to prevent potentially under-borated water that may exist in the isolated loop from diluting the borated water being transferred to the loop. During the backfill evolution, make-up flow to the active RCS volume is provided from the reactor cavity, the Refueling Water Storage Tank (RWST), or from the Boric Acid Storage Tank (BAST), which is blended with unborated water from the primary grade (PG) water storage tank. During shutdown operations, the primary grade water valves are locked closed except during controlled dilution and/or RCS makeup activities. Make-up flow is introduced to the active RCS volume by normal charging into the Loop B cold leg, and by auxiliary spray into the pressurizer on the Loop C hot leg. As a result of establishing RCP seal injection to permit a partial vacuum to be drawn on the isolated and drained loop, a small flow rate (approximately 5 gpm) of makeup is also introduced directly into the isolated and drained loop. Compliance with Technical Specifications administratively precludes the possibility of an inadequate boron concentration in makeup flow derived from the reactor cavity or RWST. Prior to its introduction into the active RCS volume, blended makeup flow from the BAST and PG water storage tank is repeatedly sampled to ensure adequate boron concentration, and to eliminate the potential for inadvertent under-boration due to improper blending. Makeup to the RCS solely through auxiliary spray during the backfill evolution is prohibited to ensure that a sufficient fraction of makeup flow is mixed with coolant in the active RCS volume and flows through the core, where the source range instrumentation is available to provide secondary indication of improperly blended makeup flow. Secondary indication of mis-blending makeup flow from the BAST and PG water storage tank is provided by operable source range instrumentation from other makeup paths (i.e., normal charging or Safety Injection paths). These controls ensure that makeup flow to the active RCS volume and to the isolated loop (through RCP seal injection) will not result in an inadvertent and undetected boron concentration less than that required by Technical Specifications in a reactor coolant loop being brought back to service.

Surveillance Requirement 4.4.1.6.1 presently requires an isolated and drained loop to be verified as drained no more than two hours prior to opening a loop stop valve for back-filling the loop from the RCS. The establishment of a partial vacuum in the isolated and drained loop may require longer than two hours. Therefore, it is proposed that the "drained-loop verification requirement" be relaxed from two hours to four hours. The two hour interval was established in Technical Specifications to ensure that the drained loop is verified to be drained at a point in time sufficiently close to the initiation of the back-fill evolution that no intervening event could occur that would render the loop no longer drained. Relaxation of the "drained loop verification requirement" from two hours to four hours will not significantly diminish confidence that the isolated and drained loop will, in fact, be drained at the time the back-fill evolution is initiated.

99-SE-OT-25

Description
Design Review for Release of Safety Monitor Models N7C and N7D, North Anna At-Power Safety Monitor
The Safety Monitor will initially be implemented at North Anna for On-Line Maintenance risk evaluations.

Summary
MAJOR ISSUES

The *Safety Monitor*^{TM} will be installed at North Anna Power Station. This program will initially perform on-line risk calculations to support compliance with 10 CFR 50.65 (the Maintenance Rule). The results will provide a quantitative estimate of plant risk due to any maintenance configuration. The calculated risk will be used to document the impact of proposed maintenance activities.

JUSTIFICATION FOR CHANGE

Implementation of the *Safety Monitor* will maintain compliance with 10 CFR 50.65. Benchmark analysis has shown that the *Safety Monitor* performs comparably or better, in most cases, when compared to the existing NUPRA risk analysis code and model. Implementation at the site will provide quicker support for emergent configuration analysis and comply with the NRC's preference for on-site analysis capability.

UNREVIEWED SAFETY QUESTION EVALUATION

Accident Probability and Consequences. Implementation of the *Safety Monitor* will have no impact upon any accident precursor. In fact, continued compliance with 10 CFR 50.65, whether by means of the *Safety Monitor* or its predecessor (the on-line maintenance matrix), limits plant risk and allows the plant staff to focus upon a smaller number of evolutions. As a result, accident probability is not increased.

Implementation and use of the *Safety Monitor* will have a positive impact upon the ability of plant equipment to perform its function in support of accident mitigation. The use of the *Safety Monitor* in support of the requirements of 10 CFR 50.65 will ensure that the number of concurrent maintenance evolutions is limited. This control ensures adequate equipment availability for accident mitigation. As a result, accident consequences are not increased.

Unique Accident Probability. The *Safety Monitor* will neither make nor support any plant hardware or operating strategy change which produces any unique accident precursor. It solely evaluates the risk of maintenance unavailability for existing equipment and thereby identifies high-risk configurations to be avoided. Any future plant changes (i.e., DCP's) which may include a PSA review will include their own safety evaluation and be evaluated on their own merits for accident risk. As a result, there is no potential for an accident of a different type than those that have been previously evaluated.

Margin of Safety. The existing accident consequence acceptance criteria and safety-related equipment performance (including setpoints) will remain unchanged. As a result, the margin of safety will remain unchanged.

Conclusion. These reviews demonstrate that the implementation of the *Safety Monitor* will not result in an unreviewed safety question, consistent with the guidelines of 10 CFR 50.59.

99-SE-OT-26

Description
•ET-SE-99-014, REV. 0 "EVALUATION OF PERFORMING T_{AVG} COASTDOWN", NAPS, UNITS 1,2
•NAF TECHNICAL REPORT NE-1195, Rev. 0, "NSSS Accident Analysis Evaluation of RCS Temperature Coastdown of North Anna at End of Cycle to HFP Temperature of 570.8°F"
•TECH. REPT. NE-1153, REV. 2, "RELOAD SAFETY EVALUATION N2C13 PATTERN UD WITH EOC TAVG COASTDOWN"
•WESTINGHOUSE REPORT "North Anna Tavg Coastdown Assessment"
•CORPORATE MECHANICAL ENGINEERING ET CME-99-0033, Rev. 1, "Operating Limitations on Secondary-Side Equipment During T-Tavg Coast, North Anna Power Station – Units 1 and 2"

North Anna Station Procedures:
ICP-P-1/2-T-409B T-AVG-STEAM DUMPS, PRESSURIZER LEVEL, POWER MISMATCH, AND ROD SPEED CONTROL
½-PT-18 STARTUP PHYSICS TESTING PREPARATION
½ OP-1C ESTIMATED CRITICAL POSITION CALCULATION
½-OP-2.2C UNIT TAVG COASTDOWN AND POWER COASTDOWN OPERATION FROM MODE 1 TO MODE 2
½-PT-11 CORE REACTIVITY BALANCE
To implement an end of cycle temperature coastdown, followed by a power coastdown, as an alternative to the standard end of cycle power coastdown operation. The TAVG coast will be no more than that allowed by the current cycle RSE.

Summary
The impact of an EOC Tavg coastdown of up to 10°F below the current nominal full power Tavg of 580.8°F has been assessed. The scope of this evaluation and the conclusions in each of the key plant design areas is briefly described below:

- NSSS design basis accident analyses (LOCA & non-LOCA events & containment integrity)

Technical Report NE-1195 (Ref. 1) documents the evaluation of the NSSS accident analyses. For each area except the containment subcompartment analysis, it is concluded that analyses continue to meet the applicable acceptance criteria for a 10°F EOC Tavg coastdown. It was determined that the existing subcompartment analysis of the pressurizer cubicle has margins that can only accommodate operation at conditions corresponding to a nominal full power RCS Tavg of 575.8°F (a 5°F coastdown). The target nominal RCS Tavg for coastdown shall be ≥ 575.8°F for EOC coastdown operation at 100% rated power conditions. After Tavg reaches the target value of 575.8°F, then a power coastdown shall be initiated.

- NSSS Systems and Components

The Westinghouse report, "North Anna Tavg Coastdown Assessment" (Ref. 2) documents the evaluation of the NSSS systems and components. These evaluations concluded that the NSSS systems and components will continue to meet their acceptance criteria for full power operation at an RCS Tavg of 570.8°F (a 10°F coastdown), under postulated normal, upset, emergency and faulted conditions.

- Balance of Plant Systems and Components

Corporate Mechanical Engineering ET CME-99-0033, Rev. 1 (Ref. 5) documents the evaluation of the secondary side equipment for coastdown operation. The combination of inlet pressure and flow associated with the coastdown were evaluated with respect to the conditions assumed in the original Westinghouse calculation of maximum turbine capability. It was concluded that the coastdown steam pressure conditions are bounded by the capability calculation. However, the steam flow associated with the target RCS Tavg of 570°F exceeded the flow assumed in the capability calculation. Reference 5 concludes that RCS Tavg should not be reduced below 575°F without approval from the turbine vendor that the proposed conditions are acceptable. Other secondary equipment was evaluated and concluded to have acceptable performance for operation with a 10°F Tavg coastdown.

- Nuclear Core Design

Technical Report NE-1153, Rev. 2, "Reload Safety Evaluation N2C13 Pattern UD With EOC Tavg Coastdown" (Ref. 4) documents the nuclear core design and safety evaluation. The effects of the coastdown upon key core physics characteristics was assessed and it was determined that safety limits will continue to be met for all postulated incidents. In order to demonstrate that the results from the large break LOCA accident remain bounded for the coastdown, it was necessary to credit reductions in core peaking factors relative to the values assumed in the existing analysis of record. The only parameter value which is more restrictive than the existing limits is the FQ(z), which should not exceed 2.15 (versus current limit of 2.19) for coastdown operation. Ref. 4 incorporates the revised FQ limit for coastdown operation into the Core Operating Limits Report.

99-SE-OT-27

Description

North Anna UFSAR Change Request No. FN 99- 024

UFSAR Change Request No. FN 99-024 contains a list of changes which need to be corrected or clarified in the UFSAR sections that discuss North Anna's Nuclear Instrumentation System. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's Nuclear Instrumentation system.

Summary

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub #1

(A) Adds a clarifying word to complete an introductory sentence in Section 3A.22.

(B) Replaces terminology about functional exceptions to the guidelines established by Safety Guide No. 22.

(C) Replaces the design description associated with devices appropriately excluded from on-line testing.

(D) Adds clarifications associated with Safety Guide 22 discussions in other sections of the UFSAR.

(A) UFSAR Section 3A.22 contains an incomplete sentence in its introductory description: the statement is missing the word "designed." In the action statement associated with the design of the protection system and its association with the IEEE 279-71 standard and the Safety Guide No. 22, the current UFSAR description contains an incomplete verb. This grammatical omission of the verb "designed" leaves the sentence incomplete and indefinite about the subject under review - "periodic testing of protection system actuation functions" in relationship to the design of the protection system. Additionally, even though the design associations and testing capabilities are made clear, particular instances of the design requirements exist where justifiable conditions can support the exclusion of on-line testing requirements. These justifiable exclusions or design exceptions that are permitted by Safety Guide No. 22 are also made clear.

(B) The UFSAR's use of the terminology "testing devices" in Section 3A.22 is inconsistent with the Safety Guide No. 22's terminology. The use of the terminology "protective function" is a more appropriate description of the exclusions permitted by Section 3A.22. Section 3A.22 discusses, in general, those protective functions that are exceptions to the requirements of Safety Guide No. 22. The "protective functions" described by Section 3A.22 are those functions without "testing devices" that are permitted to be excluded from on-line testing. Section 3A.22 is intended to make clear that the 6 functions listed are to be excluded from on-line testing, because each function is of a design that meets the exceptions criteria of Safety Guide No 22. The on-line testability of these 6 functions is unnecessary because the basic simplicity of the design of these 6 functions requires no on-line testing demonstration or the inclusion in design of more complicated "testing devices."

(C) Section 3A.22 describes an appropriate basis for excluding portions of the protection system from on-line testing; however, a portion of this description implies that associated logic circuitry has an at-power testing capability. Section 3A.22 incorrectly describes the design capability associated with testability of these functional circuits. The 6 North Anna functions addressed have a logic circuitry that relies on its simplicity and direct inclusion into the protective function so that testing on-line is not possible since these particular functions rely on so few components. Section 3A.22 is reworded to more clearly describe the acceptability of the North Anna circuitry that is a permissible exception to the Safety Guide requirements.

(D) Other sections of the UFSAR directly related to the discussions in Section 3A.22 need associated clarifications. For example, Section 7.2.3.4 and Section 7.3.2.1.5.10 address a similar Safety Guide 22 discussion as addressed in Section 3A.22. These three UFSAR sections need to be consistent and present information about periodic testing exceptions in a similar way. Section 7.2.3.4 needs to make clear that the described reactor trip features are tested only in an off-line condition. Additionally, Section 7.3.2.1.5.10 needs to identify the manual safety injection feature and the manual depressurization feature as features that should be excluded from on-line testing. Coordinating these three sections of the UFSAR is intended to appropriately describe the Safety Guide 22 exceptions in various sections of the UFSAR.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear instrumentation system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #2

(A) Adds illustrative incore instrumentation core grid annotations to Figure 4.4-20 and Figure 4.4-21 and corrects errors related to two thermocouple locations identified on Figure 4.4-20.

(B) Replaces the Section 4.4.5.1 functional description associated with the incore thermocouple instrumentation.

(A) UFSAR Figures 4.4-20 and 4.4-21 do not adequately illustrate the core instrumentation grid locations associated with incore devices. The proper identifications on these figures will illustrate where the thermocouples and movable detectors are actually located in relationship to the reactor core layout. Additionally, Section 4.4.5.1 does not reference Figure 4.4-21 in its discussion of what comprises the incore instrumentation. Also, there are two typographical errors on Figure 4.4-20, identifying thermocouple locations H-03 and N-06. Figures 4.4-20 and 4.4-21 need to illustrate the core grid locations for both Units 1 and 2, so that the discussion properly illustrates where the various thermocouples and movable detectors are located on each unit.

(B) Section 4.4.5.1 description of the incore thermocouples and their purpose are out of date and incorrect. Section 4.4.5.1 describes an incore instrumentation system used to verify on-line core quadrant power conditions. Section 4.4.5.1 describes the activity of making on-line correlations between the incore flux detectors and the incore thermocouples. However, these on-line correlations are no longer made or appropriate to make for the currently installed systems and their approved purpose.

In 1987, the inadequate core cooling monitoring system (ICCM) was installed in accordance with DC 85-07-1. The associated Engineer's Review and Safety Analysis was approved by SNSOC on 2/5/85. These amendments required that the incore thermocouple system be modified to support post accident monitoring conditions rather than on-line power correlations. By these amendments the design of the readout and processing capability of the incore thermocouples system was modified so that on-line correlations between the thermocouples and the flux detectors were no longer a practical function of this equipment.

The core exit thermocouple system required a redefinition and reappropriation to become part of the ICCM system. Regulatory requirements associated with Regulatory Guide 1.97 and NUREG 0737, Item II.F.2, required that the existing non-redundant, non-class 1E core exit thermocouple system be upgraded to a redundant Class 1E core exit thermocouple system (CET). Additionally, the existing reactor vessel monitoring system (RVLIS) and the core cooling monitoring system (CCM) were integrated with the core exit thermocouple system to compose the inadequate core cooling monitoring system (ICCM). By these modifications, the existing electronics and process display equipment associated with RVLIS, CCM and CET were removed and replaced with a single ICCM electronic display system. The purpose of this single system was to provide the means for assessing reactor core conditions following a severe core accident. Of significance, the incore thermocouple measurements associated with the new design function were no longer processed by the plant computer (P-250). Removal of this processing feature removed the existing thermocouple system's capability for indicating narrow range temperature measurements needed for correlating on-line incore power measurements and core exit temperature measurements. However, installation of the ICCM enabled the wide-range measurement needed to properly assess the conditions of the core in a post-accident condition.

The removal of the on-line capability to correlate core power distribution with incore thermocouple measurements was from the original design an optional or complimentary feature of the core's monitoring system. Incore thermocouples were considered as a non-essential on-line feature since the core power distribution was adequately measured through the use of the movable incore detectors.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear instrumentation system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation currently proposed; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #3

Replaces an incorrect reference to one section of the UFSAR with an appropriate reference to another section of the UFSAR.

An illustrative UFSAR reference in Section 4.4.5.2 is incorrect. Section 4.4.5.2 is about the reactor core instrumentation applications associated with the overtemperature and overpower delta T instrumentation. References are made in the description of the overtemperature and overpower delta T setpoint that are inconsistent with the descriptions provided in Section 4.4.5.2. The inappropriate reference provided is a reference to Section 7.7.1.1. This section describes features about the reactor control rod system that are unrelated to the overtemperature and overpower delta T setpoints. An appropriate reference to Section 7.2.1.1.2 is a relevant illustration about the factors that establish the overtemperature and overpower delta T setpoint. Section 7.2.1.1.2 adequately describes the factors that make up these reactor trip setpoints.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear instrumentation system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #4

Replaces Section 7.1 introductory discussion and terminology relating "margin of safety" and "instrument loop uncertainties."

The UFSAR Section 7.1 introductory discussion associated with instrumentation hardware constraints uses imprecise terminology about instrument loop signal uncertainty and its relationship to the more global term "margin of safety." Accident analysis conditions represent overall, inclusive, and global assumptions about reactor core and fluid process uncertainty and the setpoints and setpoint uncertainties needed to match or prove its limitations. Actual calculated instrument uncertainties or channel statistical allowances are about particular instrument devices in various local hardware environments that are more rigorously defined in terms of the local effects rather than the global conditions.

The primary purpose of the instrumentation within the global framework of the accident analysis is to provide an initiating signal, or more precisely, the capability of a setpoint actuation that will have a high degree of reliability and accuracy, so that the appropriate end devices will receive an actuated signal that represents a known and definable process condition. The determinate of the conditions associated with an accident initiation signal is an analytical exercise based on good engineering judgments of an aggregate of possibilities that are structured to define a fluid process within a legally acceptable calculation model. Chapter 15 of the UFSAR defines the fluid process limits, within which the initiation signals must make a reasonably accurate actuation of the end device possibilities. Signal accuracy standards on the other hand, such as Engineering Standard 0304, determine the channel statistical allowance of an instrument providing it with a quantification of the possibility of an adverse signal environment on the conditions of the hardware. Hardware conditions associated with instrumentation accuracy have to consider both the global requirements for signal accuracy originating from the accident analysis assumptions, as well as the particular and unique hardware requirements originating from the local effects that each instrument finds itself in.

What needs to be clarified in the introduction of Section 7.1 is the fact that instrumentation loop uncertainty is a numbered value that must be defined by the Chapter 15 accident analysis and its legally binding Technical Specifications. The term "margin of safety" must refer to the calculated uncertainty of the reactor core conditions associated with all predetermined analytical assumptions, while actual instrument accuracy determinations are an additional subset or exercise that is proven or verified about an instrument's capability. The described UFSAR facts need to make clear that these shared considerations compose a proper discussion and identification of instrument loop signal inaccuracies and their reactor core setpoint limits.

The minimum performance level of an instrument's signal accuracy is established by the overall requirements of the global accident analysis (equivalent to the total signal inaccuracy allowance). The actual empirical estimations of the instrumentation signal accuracy or channel statistical allowances are estimations of the maximum performance level of an instrument's signal accuracy that can be proven by a number of uniquely determined statistical assumptions and considerations, when needed to support or verify the global assumptions (equivalent to the channel statistical signal inaccuracy allowance).

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear instrumentation system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #5
Replaces a drawing cross reference on Figure 7.2-5.

A drawing cross-reference identified on Figure 7.2-5 is incorrect. Figure 7.2-5 describes the primary coolant system trip signals and also illustrates the overtemperature and overpower delta T rod block signals. The overpower delta T rod block signal illustration provides a cross reference to Figure 7.2-2. This cross reference to Figure 7.2-2 should be identified as Figure 7.7-2 rather than Figure 7.2-2, which is a typographical error. Figure 7.2-5 should direct the reader to Figure 7.7-2 as a correct connection with the Figure 7.2-5 illustrations.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear instrumentation system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #6

Adds bearing cooling water pump annotations to Figure 7.3-9.

UFSAR Figure 7.3-9 is missing complete annotations associated with Bearing Cooling Water Pump 1B. Figure 7.3-9 illustrates the station service undervoltage signals that result in particular actuations. Figure 7.3-9 identifies each of the breakers or pumps that operates when an undervoltage condition occurs. Figure 7.3-9 omits, however, an annotation of the Bearing Cooling Water Pump 1B which will trip when the undervoltage drops below 70% on the Station Service Bus 1C (Bearing Cooling Water Pump 1B is fed from Station Service Bus 1C). Figure 7.3-9 is being corrected to agree with the bearing cooling water pump circuitry illustrated on other UFSAR figures, such as, Figure 8.2-8 as well as controlled station drawings (e.g. 11715-FE-1B).

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear instrumentation system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-28

Description

North Anna UFSAR Change #FN 96-007, NRR Safety Evaluation Letter July 7,1998

The original SER eliminated the augmented weld inspection program on high energy piping, main steam and feedwater, outside of containment. Through correspondence with the NRC, we have been approved to reduce the number of weld inspections from 100% to 75% over an interval. Each period we will inspect 25% of the welds.

This UFSAR change reflects the reduction in number of exams. The remaining weld inspection plan will continue to provide assurance of weld integrity.

Summary

The UFSAR change reduces the current augmented weld inspection requirements on main steam and feedwater piping welds outside containment.

ASME Section XI recently published a report No. 92-01-01 Rev. 0 dated December 1994 by the Task Group on ISI Optimization. They noted that after 20 years of service experience no correlation exists between welds selected for examination using current criteria (stress) and actual reported problems. This is due in part to the fact that stress analyses are dependent on design conditions such as seismic events more than actual service conditions.

Service conditions on the main steam and feedwater systems would indicate that a flow-accelerated corrosion inspection program would be more beneficial in precluding high energy line breaks. The present flow accelerated corrosion inspection program will continue to provide additional assurance of structural integrity. Additionally, the UFSAR in Section 3C.2.7.2 notes that the piping material on the main steam and feedwater systems would leak before critical flaw size is reached. In the unlikely scenario that a flaw does develop, leakage would still be detected through the unaffected leakage detection system. The proposed weld inspection program (75% over 10 years) will continue to provide assurance of weld integrity in any case.

The US NRC has reviewed and approved the proposed inspection change by a safety evaluation letter dated July 7, 1998. They noted that the proposed plan provides three times the number of inspections required by ASME Code for Class 1 and 2 piping. They stated our proposed plan would provide an acceptable level of quality and safety. By review of the NRC response and by this Safety Evaluation, these changes do not create an Unreviewed Safety Question.

99-SE-OT-29

Description

North Anna UFSAR Change Request No. FN 99-027

UFSAR Change Request No. FN 99-027 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss North Anna's circulating water system. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's circulating water system.

Summary

The following editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any circulating water system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub # 1

Clarify the proper name for the North Anna Reservoir in Section 1.2.10. There are several names currently given in the UFSAR for the bodies of water at NAPS. The following definitions are used to clarify these bodies of water:

Lake Anna: When referring to the large body of water as a location landmark. Lake Anna is comprised of the North Anna Reservoir and the waste heat treatment facility.

North Anna Reservoir: The large part of Lake Anna that supplies cooling water for the station.

Waste Heat Treatment Facility: The smaller part of Lake Anna that contains the cooling lagoons. The waste heat treatment facility dissipates waste solution heat from circulating water discharge before the return of this water to the North Anna Reservoir.

Service Water Reservoir: The reservoir that contains the spray arrays.

Change Item Sub # 2

Change the value of circulating water that goes to the condenser in section 2.4.11.5 to 940,000 gpm. The conversion from the FSAR to the UFSAR, Rev 0, contained a typographical error in that circulating water flow to the condensers should have been described as 940,000 gpm as shown in response to staff comment D2.4.11.f. Specification NAS-45 lists the design requirement of the circulating water to be 940,300 gpm.

Change Item Sub # 3

Clarify the description of the opening of the discharge structure in section 2.4.11.5. The top of the opening of the discharge structure is shown to be at elevation 245 ft. on plant drawing 11715-FC-5E, which is 247 feet minus the 2 feet of concrete.

Change Item Sub # 5

Revise Table 2.4-7's title to include the fact that these pumps are at the Main Intake Structure. The full correct name of the pumps will be added to the table. Change the description of "Service water pumps" to "Auxiliary service water pumps", "Screen wash pumps" to "Circulating water screen wash pumps", and "Fire protection pumps" to "Motor driven fire protection pump". UFSAR Section 2.4.11.5 notes that the information in the table is provided "for pumps located in the main intake structure only". The title of the table will be revised to clearly indicate this fact. This change will minimize the possibility of the information provided in the table from being misinterpreted if the table is accessed without first reading the associated text in section 2.4.11.5. The full correct name of the pumps will be provided to minimize confusion with other similarly named pumps at the service water reservoir. There has only been one fire pump that supplies water from the Lake Anna intake structure, and therefore, fire protection pumps will be made singular. UFSAR Section 9.5.1.2.1, Fire Protection Water Systems, discusses the different locations of the fire pumps.

Change Item Sub # 7

Revise Section 10.4.2.3 to clarify that these level instruments, though not a part of the safety-related protection system, meet the single failure and testability requirements of IEEE-279. Although the system meets the many requirements of IEEE-279, it is not a part of the safety-related protection system. A review of IEEE-279 and elementary diagrams 11715-ESK-11S and T show that the flood detection and trip circuitry are designed such that they meet the requirements of IEEE-279. In particular, the properties of redundancy, quality requirements, testability, and single failure criteria were evaluated against the IEEE standard. Since, IEEE-279 was written specifically for safety-related performance of protection systems the statement may mislead the reader to believe the system is a part of the safety-related protection system, which it is not. The revision makes it clear that the system is not safety related even though it meets the criteria of IEEE-279. In addition, the components that make up the system are specifically listed as non-safety related in EDS and are not maintained as safety-related equipment. This statement was put into the UFSAR as a response to NRC FSAR comment 10.15.

Change Item Sub # 8

The closed gate valves depicted on Figure 10.4-1 will be changed to open motor-operated valves. 11715-FM-077A sheets 1 and 2 show these valves to be motor-operated valves used to isolate the pumps and the waterboxes. They are normally in the open position.

Summary:

The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub # 4

Section 2.4.11.6 will be changed to indicate that the North Anna Reservoir level indication is displayed at the dam and is available in the main control room from the plant computer. The original North Anna Reservoir level system that displayed in the control room was fed from two transmitters, one located at the circulating water intake structure and one located at the dam. This system was abandoned in place via EWR 89-484F when a new lake measuring system was installed at the main dam. The Modification Checklist and Activity Screening Checklist for EWR 89-484F incorrectly stated that the lake level system was not discussed in the UFSAR. At the request of Operations, the old system, at the circulating water intake, was walked down and partially placed back in service via DCP 94-122. Only the input to the plant computer was reinstated. The new lake measuring system, at the dam, is a non-safety related application that does not impact any safety related, EQ or NSQ equipment. The Programs Review, Controlled Document Summary and Activity Screening Checklist in DCP 94-122 incorrectly stated that the UFSAR was not affected. North Anna Reservoir level is normally provided by instrumentation that is located at the dam. The control room operators contact the dam operator periodically to obtain reservoir level information for the operator logs. The plant computer information may be used as a secondary method of obtaining level information. The North Anna Reservoir level devices do not provide any automatic control or accident mitigating function and are used for indication and trending purposes only. No regulatory requirements to continuously record and display lake level were identified. All dam manipulations are done from the spillway control house at the dam, therefore it is more appropriate to have the level information continuously displayed and recorded at that location. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 6

Delete the word "concrete" from Section 10.4.2.3. The flood barriers are constructed of concrete and removable steel barriers. These barriers are original construction and are shown in drawing 11715-FC-6R, Rev 9. Calculation CE-0626 evaluates the existing flood barriers in the turbine and service buildings. It concluded that these barriers are structurally adequate for load due to flooding plus the applicable seismic loads. This statement was put into the FSAR in response to a NRC question about the FSAR. Comment 10.16A "Clearly show the concrete barriers utilized for flood protection in building layout or separate drawings, indicating their height and other dimensions." Response: "The three doors connecting the turbine building and safety related equipment rooms have in fact been provided with 3 ft. high flood barriers." (9-5-75) Safety Evaluation by the office of NRR related to flooding reanalysis and Amendments 131/115 dated July 25, 1990 does not specify what type of material the flood barriers are made of. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of a turbine building flood barrier in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 9

Revise Figure 10.4-2 to reflect updated flooding intervals for the various pits and areas depicted in the figure. Provide a note indicating that the figure presented is based on the failure of a condenser outlet expansion joint. Also, indicate that the failure of an inlet expansion joint would result in only a change in the order of the filling of the tube cleaning equipment pit & miscellaneous equipment pits. Implement other editorial changes that include changing title to "Circulating". The time associated with the "BACKFLOW FROM DISCH TUNNEL" entry in Figure 10.4-2 will be removed since this time interval occurs after the protective action of tripping the circulating water pumps occurs and has not been formally calculated. Calculation 11715/12050-M-100, "Time Required to Flood the Turbine Building after REJ Failure" was prepared by SWEC in 1977 to formally document the flooding profile of the turbine building resulting from the failure of either a condenser inlet or outlet circulating water expansion joint. The turbine building flooding curves provided by the calculation are different than the current UFSAR figure due to more realistic assumptions related to the net leakage area provided by a failed expansion joint. It is also noted by the calculation that circulating water system pressure data has been updated which impacts the leakage rate. The overall effect of these changes is a reduction in the flooding rate. For the case of a circulating water condenser outlet expansion joint failure, the flooding curve appears very similar to the current UFSAR figure with the only significant difference being in the duration of the time intervals for flooding of the various pits/areas. A failure of a CW condenser inlet expansion joint changes the flooding sequence (misc. equipment pits become filled before the Amertap pit starts to fill) and the duration of the time intervals for flooding of the pits/areas. Therefore, the UFSAR figure is being updated to be consistent with the results of calculation 11715/12050-M-100. The critical number that is shown in this figure are the time (142 seconds) it takes for the turbine building to flood to the level to trip the pumps (255'-0"). The interval for tripping the circulating water pumps is approximately 40 seconds longer than indicated on the original UFSAR figure and is more conservative (i.e. - flooding rate is reduced and control room operators have additional time to perform mitigating actions). Since the increase in the tripping interval for the circulating water pumps does not compromise the flood barriers, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The change in the flooding interval does not create the possibility of an accident or malfunction of a different type than previously evaluated in the safety analysis report. The overall effect of the change to the calculation is a reduction in the flooding rate and no analyses or setpoints are affected. The margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-30

Description

North Anna UFSAR Change Request FS 99-039 for sections 15.4.1.7.3 and 15.4 References.
The UFSAR is being updated to reflect that the maximum allowable ECCS leakage per Unit in the indirectly filtered areas of the Auxiliary Building (i.e., outside the charging pump cubicles and Safeguards) will be limited to 600 cc/hr. Total ECCS leakage is currently tracked by Procedure 1/2-LOG-20. JCO C-98-01 currently limits total allowable ECCS leakage to 600 cc/hr. Following the closure of JCO C-98-01, the total allowable ECCS leakage will return to 900 cc/hr.

Summary

The dose analysis of record assumes that 100% of the iodine from the ECCS leakage that becomes airborne passes through the charcoal filters. However, only certain areas (the charging pump cubicles and Safeguards) are provided with dedicated exhaust paths to the filters. The sensitivity evaluation, which is documented in References 1, and 2 indicates that up to 600 cc/hr of the total allowable ECCS leakage could be released unfiltered while maintaining the dose within the limits established by NRC Letter Serial #90-116, dated February 28, 1990 (Reference 5) and NUREG-0053, dated June 1, 1976 (Reference 6). Therefore, the maximum allowable ECCS leakage in areas outside the charging pump cubicles and Safeguards is limited to 600 cc/hr. Note that JCO C-98-01 currently limits total allowable ECCS leakage to 600 cc/hr. Following the closure of JCO C-98-01, the total allowable ECCS leakage will return to 900 cc/hr.

The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased as a result of this change. ECCS leakage does not affect the probability of occurrence of an accident or equipment malfunctions. The maximum allowable ECCS leakage (excluding that in Safeguards and the charging pump cubicles) is being reduced, and the total allowable ECCS leakage will return to 900 cc/hr following the closure of JCO C-98-01. Sensitivity analyses were performed to determine the maximum amount of filter bypass (unfiltered release) that could be accommodated by the conservatism in the existing LOCA analysis, and by the margin to the dose limits established by the licensing documentation for the LOCA analysis. The analyses showed that up to 600 cc/hr of the currently allowable total leakage (900 cc/hr) could be completely unfiltered without causing the dose consequences to exceed the licensing basis limits. The licensing basis limit for the Control Room thyroid dose is 19 rem, which was established by NRC letter serial #90-116, dated February 28, 1990 (Reference 5). The licensing basis limit for the EAB thyroid dose is 116 rem, which was established by NUREG-0053, dated June 1, 1976.

The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not increased. The Total Allowable ECCS Leakage has not changed from the previously evaluated limits. Therefore, this activity can not create an accident of a different type. No physical changes are being made to plant equipment. The methods of operating plant equipment will not be changed. Maximum operating temperatures and pressures will not be increased. No control or protective circuitry will be changed or affected.

The margin of safety as defined in the basis for any Technical Specification is not reduced. The amount of allowable ECCS leakage is not directly addressed in the Bases. The sensitivity analyses assumed that ECCS leakage of 600 cc/hr is released unfiltered. However, the licensing basis analysis limits established by Reference 6 are not exceeded. Therefore, there is no reduction in margin of safety.

99-SE-OT-31

Description
North Anna 10CFR50 Appendix R Report, Revision 17.
This evaluation is being performed to assess Revision 17 of the 1999 update of the North Anna 10CFR50 Appendix R Report. It incorporates DCPs completed in 1998, and information concerning other station changes as they pertain to Appendix R. Changes to Appendix R engineering evaluations and exemption requests were performed to reflect current plant configurations. Changes originating from DCPs, ET's, self-assessments and integrated review team efforts were added. Also, editorial changes have been made to improve the report's usability and accuracy.

Summary
In accordance with 10 CFR 50.59, this evaluation is being made to determine if changes made to the Appendix R Report could adversely impact the capability to achieve and maintain safe shutdown in the event of a fire. This safety evaluation includes an assessment of the revision's impact on the fire protection/Appendix R program for the station.

Description of Changes

Revision 17 of the 1999 Update of the North Anna Appendix R Report involves the revision of Appendix R Engineering Evaluations, Exemption Requests, DCP related changes, and editorial/administrative changes. In general, revisions to Engineering Evaluations and Exemptions reflect current plant configurations. Editorial/administrative changes are not addressed in the safety evaluation since they have no safety impact.

The changes to the Appendix R Report are as follows:
1. Chapter 3, Table 3-1.F, replace 1-CC-TI-156A and 156B with 1-CC-TI-149A-1 and 149B-1 respectively to reflect work completed by DCP 98-110. The design change addressed the Appendix R Report changes and provided a safety evaluation for the changes. Appendix R Change Notice # 1999-N-001
2. Chapter 3, Table 3-1.J, add Note 1 to 1-NM-NFD-190 and 1270 components. A note was added to the table to indicate NFI-32A and 32F instrumentation was fire wrapped with a radiant energy shield. In the event of a containment fire these instruments will provide indication in lieu of NFD-190 and 1270. Appendix R Change Notice # 1998-N-010
3. Chapter 3, Table 3-2.B, Change the Unit 1 designator on mark numbers 1-SI-MOV-2865A/B/C to Unit 2 designator. The subject mark numbers were revised to reflect the correct unit designators. Appendix R Change Notice # 1999-N-006
4. Chapter 4, Section 4.4.1, add additional discussion on how safe shutdown is achieved in the event of a Control Room fire. DR N-99-795 documented a control room fire scenario that could potentially lead to the loss of charging. The FCA procedure was revised to address the concern. The Appendix R Report is being updated to include discussion on how compliance with Appendix R is achieved in the event of a control room fire. Engineering Task Tracking # 1709/02
5. Chapter 6, Section III.7, update the discussion on Radiant Energy shields to reflect completion of DCPs 98-100 and 101. Appendix R Change Notice # 1998-N-018
6. Chapter 7, Exemption Request 33, clarify discussion on security perimeter lighting to reflect actual plant conditions. The exemption is being updated to clarify previous statements and reflect actual plant conditions. The changes do not alter the technical basis of the exemption. Appendix R Change Notice # 1999-N-002
7. Chapter 10, Engineering Evaluation 14, clarify description of steel plate to reflect actual plant design. The evaluation was updated to reflect the single steel plate in Unit 2 MSHV is unbolted and pipes are attached to the steel plate by a continuous weld (Ref. ET CEM 98-0056) The steel plate is not expected to move vertically and therefore will continue to function as a fire barrier. Appendix R Change Notice # 1999-N-003

The above changes to the report fall into three categories; 1) changes requiring evaluation (changes 6 & 7), 2) previously evaluated changes (changes 1 & 5), and 3) changes to clarify the report or editorial in nature

(Changes 2, 3, & 4). Changes to Appendix R engineering evaluations and exemption requests are considered as category 1 changes and are addressed in this evaluation. A number of plant modifications have affected the station and affect the Appendix R Report and are listed in category 2. Since these modifications were completed using the Design Change process, the safety significance of the work has already been evaluated. This update of the Appendix R Report compiles and incorporates submitted "Appendix R Report Change Notification" forms for DCPs closed out since the last annual update of the report was issued. There have also been a number of editorial changes and administrative enhancements to the Appendix R Report. These are listed as category 3. These changes do not affect the report. They are intended to improve clarity, accuracy, and appearance of the report. These changes include the correction of mark numbers, discussion of the status of various projects, provide description of as designed plant systems and components, procedure references, etc. Category 2 and 3 changes do not affect any commitments or technical content of NRC Safety Evaluation Reports addressing Appendix R or Fire Protection.

The changes to Evaluations and Exemptions are to reflect actual plant conditions. The changes have been evaluated against the existing Appendix R requirements and the station's Fire Protection Program. It has been established that: a) the level of fire protection for the station is not being diminished, i.e. defense in depth is maintained, and b) this change will not affect the capacity to achieve and maintain safe shutdown in the event of a fire. This evaluation was prepared by a Fire Protection Engineer, eligible for Member grade status in the Society of Fire Protection Engineers.

99-SE-OT-32

Description
Engineering Transmittal CME 99-0016, Revision 1, "Response to DR-N-99-0655, North Anna Power Station, Units 1 & 2."
To evaluate changing the design pressure for the main steam containment penetrations from 1085 psig to 996 psig.

Summary
During a review of the Secondary Piping and Component Inspection Program piping inspection list for the 1999 North Anna Unit 2 refueling outage, it was noted that the piping material used for Containment Penetration #73 on line 32"-SHP-403-601-Q2 ("C" Main Steam), might not be the same material as originally supplied for the associated pipe in Class 601, which was ASTM A155, Class I, Grade CMS75. Drawing 12050-FV-1C, "Reactor Containment Piping Penetrations SH 3" calls for the pipe to be ASTM A333, Grade 6 but the Unit 1 version of this drawing, 11715-FV-1C, specifies the pipe material as ASTM A155, Class I, Grade KCF 70. North Anna Civil/Mechanical Engineering confirmed through vendor drawings (12050-3.14-110C, -111C, and –112C, and 11715-3.14-77D, -78D, and –79D) that the material for the MS penetrations for both units is ASTM A155, Class I, Grade KCF 70.

Per ANSI B31.7, Table A.8, the stress allowable for ASTM A155, Class I, Grade CMS75 is 18,700 psi whereas the stress allowable for ASTM A155, Class I, Grade KCF 70 is 17,500 psi. The resulting minimum code wall thickness for hoop stress for ASTM A155, Class I, Grade CMS75 material is 0.907" versus 0.968" for the ASTM A155, Class I, Grade KCF 70 material.

During the Secondary Piping and Component Inspection Program inspections conducted as part of the 1995 refueling outage, a 6" portion of Containment Penetration #73 was UT inspected as part of the upstream 90 degree elbow. Based on the above identified minimum code wall thickness for the ASTM A155, Class I, Grade KCF 70 containment penetration pipe, the inspection identified numerous readings below 0.968", with the lowest reading being 0.912". As a result, Containment Penetration #73 has readings below minimum code wall thickness for hoop stress (DR-N-99-0655 was submitted).

The code of record for the subject penetration is Subsection 2 of ANSI B31.7 (with 1970 Addenda), "Requirements for Class II Pipe," which states that the subject piping "shall meet the design criteria stated in Division 102 of USAS B31.1.0-1967," but that the "allowable stresses shall be as given in Table A.8 of Appendix A" of ANSI B31.7.

Division 102 of USAS B31.1.0-1967 allows the use of up to 15% increase above the given stress allowable if the maximum design pressure occurs less than 10% of the operating time. The code also allows the use of up to 20% increase above the given stress allowable if the maximum design pressure occurs less than 1% of the operating time. The design condition for the affected main steam lines is 1085 psig at 560^{0}F, but these lines operate at the actual design condition much less than 10% of the time.

Engineering Mechanics has reviewed the stress calculations applicable to the main steam containment penetrations. The longitudinal stress calculations are performed using the nominal wall thickness of 1.000", and the calculation is valid as long as the existing pipe wall thickness is within 0.875% and 1.125% of the nominal wall thickness. In this case, the code compliance for longitudinal stress is not altered as long as the existing pipe wall thickness is between 0.875" and 1.125". Since the longitudinal stress evaluation was performed with a design pressure of 1085 psig in addition to other specified loading combinations, the reduction of the design pressure to 996 psig will not alter the code compliance. In fact, the longitudinal stress calculation will remain conservative since it used a higher value for the design pressure. The code minimum wall thickness will continue to be governed by hoop stress since it was a higher wall thickness requirement. The hoop stress is calculated by using Division 104 of USAS B31.1.0-1967.

The main steam safety valves are designed to limit the maximum pressure that the steam generator will experience at 110% of design pressure [1100 psia (1085 psig)] as required by ASME Section III

(1968). The 110% of steam generator design pressure is 1210 psia (1195.3 psig), and is the maximum pressure the main steam pipe penetrations would be exposed to, and it will occur at much less than 1% of the time. Utilizing the equation in Division 104 of B31.1.0-1967, and the 20% increase in material stress allowable permissible by B31.1.0, would yield a code minimum thickness of 0.890".
With this 0.890" wall thickness, the Main Steam penetrations have adequate margin during the very infrequent times that the system pressure would approach the Main Steam Code Safety Valve relief pressure. Therefore the design pressure for the Main Steam Containment Penetrations (1/2-PEN-PN-73/74/75) will be changed to 996 psig, and the resulting Code Minimum Wall Thickness will become 0.890". The main steam system normally operates below 840 psig.

By utilizing the allowances permitted by the power piping code for variations from normal conditions, the design pressure for the main steam containment penetrations will be lowered from 1085 psig to 996 psig, while still meeting the original design requirements.

An unreviewed safety question does not exist for the reasons discussed above, and because this change meets the requirements of the original construction code (ANSI B31.7 with 1970 Addenda). The structural integrity of the main steam system is maintained.

99-SE-OT-33

Description

UFSAR Change Request FN 99-034 for Updated Final Safety Analysis Report, Sections 15.1.6 and 15.2.2.

The change revises the transient analysis of the uncontrolled rod cluster control assembly (RCCA) withdrawal at power (RWAP) accident in Section 15.2.2 of the North Anna UFSAR. Explicit analyses were performed to demonstrate that the peak secondary system pressure meets the acceptance criterion and is bounded by other accidents. Historically, the NAPS RWAP event has been dispositioned as bounded by the loss of load accident. In addition, analyses were performed with the current RETRAN Version 1 analysis model for the other acceptance criteria. The RWAP event is an ANS Condition II event and was explicitly analyzed and shown to meet the event acceptance criteria (DNBR less than limit, peak RCS and secondary system pressures less than limits, no event propagation). The intent of the UFSAR update is to update the transient analysis assumptions and description in Section 15.2.2 to be consistent with the new analysis. In addition, some minor changes are made to UFSAR Table 15.1-2 and the Chapter 15 Table of Contents. The UFSAR change does not involve any changes to the plant systems, structures, and components, or to the manner in which the plant is normally operated.

Summary

The change revises the transient analysis of the uncontrolled rod cluster control assembly (RCCA) bank withdrawal at power (RWAP) accident in Section 15.2.2 of the North Anna UFSAR [Reference 1]. The purpose of the reanalysis was twofold. First, the analysis used the current RETRAN Version 1 analysis model, which models the fuel reactivity feedback with the Doppler temperature coefficient (DTC). Previous analysis models used a Doppler power defect/coefficient (DPC). Currently, Nuclear Core Design (NCD) verifies the DPC and DTC for each reload core design. The new analysis of record will eliminate the DPC cycle-specific verification for this accident. The DPC will be removed from the blank Reload Safety Analysis Checklist (RSAC) by a separate safety evaluation, as tracked by NAF Level 1 Item #894. The DTC limits in the blank RSAC will continue to be verified as bounding for each reload core design. The current blank RSAC reference for the DTC limits does not need to be revised to reference the RWAP analysis, since the RSAC reference analysis is more limiting than the RWAP. Second, explicit analyses were performed to verify that the peak secondary system pressure is bounded by other accidents and meets the event acceptance criteria. Historically, this criterion for NAPS RWAP event has been dispositioned as bounded by the loss of external electrical load accident [UFSAR Section 15.2.7]. The NAPS accident analysis results in a peak secondary system pressure less the than loss of load event [Reference 2], thereby validating the qualitative basis and demonstrating significant margin to the overpressure acceptance criterion. The Surry UFSAR includes an explicit evaluation of peak secondary system pressure, and the addition of an explicit analysis for NAPS will make the plants consistent.

The RWAP accident analysis [Reference 2] was performed with NRC approved codes and methods. Analysis assumptions were consistent with the current plant design and analysis bases. The maximum reactivity insertion rate was conservatively assumed to be greater than that for the simultaneous withdrawal at maximum speed of the two rod control banks with the greatest combined worth during normal overlap conditions. The reactor protection system is designed to ensure that the reactor safety limits are not exceeded during the RWAP event, and that the event conditions do not develop into more a more severe accident. The overtemperature ΔT and high neutron flux reactor trips demonstrate that the RWAP event does not violate the DNBR limit for power operation. Reduced loop average temperature operation (within the current allowable operating band) and up to 15% steam generator tube plugging were also considered in the analysis. The RWAP reanalysis satisfies the applicable event acceptance criteria (DNBR less than limit, peak RCS and secondary system pressures less than limits, no event propagation). The intent of the UFSAR update is to revise Section 15.2.2 with the transient analysis assumptions, method of analysis, and results from the Reference 2 analysis. In addition, a minor text change is made to Table 15.1-2 in the UFSAR. The UFSAR change does not involve any changes to the plant systems, structures, and components, or to the manner in which the plant is normally operated.

No unreviewed safety question arises from the evaluation and the proposed change to the North Anna Power Station UFSAR, as summarized below:

1. No increase in the probability of occurrence or consequences of an accident or malfunction will result from the implementation of the proposed changes to the North Anna Power Station UFSAR, since there are no changes to the plant configuration or operating procedures. The proposed change to the North Anna Power Station UFSAR is consistent with the accident analysis design basis for the uncontrolled RCCA withdrawal at power event. The accident analysis complies with the current plant design basis and Technical Specifications and bases thereof. The accident analysis demonstrates margin to the applicable event acceptance criteria. Therefore, implementation of this change will not result in more severe consequences than those considered in the SAR.

2. The implementation of the proposed change to the North Anna Power Station UFSAR does not create the possibility of an accident of a different type than was previously evaluated in the SAR. The RWAP event is an accident type that is currently postulated in UFSAR Section 15.2.2. Implementation of the change does not create the possibility of an accident of a different type than was previously evaluated in the SAR.

3. The implementation of the proposed change to the North Anna Power Station UFSAR will not reduce the margin of safety. The proposed UFSAR change does not change the plant configuration or mode of operation. The accident analysis for the RWAP event shows margin to the applicable event acceptance criteria, which ensures that the current margin of safety in the Technical Specification basis is maintained. Therefore, the margin of safety will not be reduced by the implementation of the summarized changes.

99-SE-OT-34

Description
UFSAR Change Request FN 99-040 for Updated Final Safety Analysis Report, Section 15.1.6
The change revises the transient analysis assumptions for the Doppler reactivity feedback in Section 15.1 of the North Anna UFSAR. The accidents that have the Doppler reactivity feedback as a key safety analysis parameter have been analyzed with the Doppler temperature coefficient model in the RETRAN Version 1 model. As a result, Figure 15.1-3, which shows the Doppler power coefficient versus power, is no longer applicable to the UFSAR Chapter 15 accident analyses and will be removed. Table 15.1-2 is being revised to be consistent with the current DTC assumptions documented in the analyses of record. This change represents an administrative revision to how the Doppler feedback is represented in the transient analyses. Two other minor changes are made. Some computer codes listed in Table 15.1-2 are updated to be consistent with the description from the specific Chapter 15 accident analysis. In addition, some minor typographical errors are corrected. The UFSAR change does not involve any changes to the plant systems, structures, and components, or to the manner in which the plant is normally operated.

Summary
The change documents the Doppler reactivity coefficients assumed in the UFSAR[1] Chapter 15 transient analyses. The current RETRAN Version 1 analysis model uses a Doppler temperature coefficient (DTC) to model the fuel reactivity feedback effects. Previous analysis models used a Doppler power defect/coefficient (DPC). The Virginia Power reload design nuclear design methodology topical report[2] lists both the Doppler temperature and power coefficients as non-specific event key safety analysis parameters. Basically, the fuel reactivity feedback can be expressed in either terms, but the early RETRAN transient analysis models used the DPC model before the recent transition to the DTC model. Currently, Nuclear Core Design (NCD) verifies the DPC and DTC limits for each reload core design.

Reference [3] documents an evaluation that reviewed the Chapter 15 accidents, determined which accidents are sensitive to the Doppler feedback effects, and demonstrated that the Doppler-sensitive accidents have been analyzed with the RETRAN DTC model and have been incorporated in the North Anna UFSAR. As a result, the DPC limits are not key parameters in the North Anna accident analysis basis. Therefore, UFSAR Figure 15.1-3, which documents the DPC limit curves, is no longer applicable. UFSAR Table 15.1-2, with the list of assumed reactivity coefficients, is updated to be consistent with the current DTC limits that are part of the North Anna accident analysis basis.

The North Anna Blank Reload Safety Analysis Checklist (RSAC)[4] least negative and most negative DPC limits, Items 2.2.2.1(a) and (b), will be removed from the RSAC as tracked by NAF Level 1 Item #894. The DTC limits in the Blank RSAC will continue to be verified for each reload core design. The rod ejection analysis assumes an integral Doppler power defect that has its own Blank RSAC limit, Item 2.2.2.1(c), which will continue to be verified for each reload core design. The UFSAR change completes the transition from modeling fuel reactivity feedback with a power coefficient to a temperature coefficient.

The intent of the UFSAR update is to revise Table 15.1-2 in the UFSAR to reference the Doppler temperature coefficients assumed in the safety analyses and to remove Figure 15.1-3, which does not represent the current Doppler modeling assumption. Two other minor changes are made. For some accidents, the computer codes listed in Table 15.1-2 are updated to be consistent with the description for the specific Chapter 15 accident analysis. In addition, some minor typographical errors are corrected. The UFSAR change does not involve any changes to the plant systems, structures, and components, or to the manner in which the plant is normally operated. No accident analysis was performed to support this evaluation. The current North Anna accident analysis basis supports this UFSAR change.

No unreviewed safety question arises from the evaluation and the proposed change to the North Anna Power Station UFSAR, as summarized below:

1. No increase in the probability of occurrence or consequences of an accident or malfunction will result from the implementation of the proposed changes to the North Anna Power Station UFSAR, since there are no changes to the plant configuration or operating procedures. The proposed change to the North Anna Power

Station UFSAR is consistent with the accident analysis design basis as described in the Chapter 15 accident sections. No new accident analyses were performed to support the UFSAR change. Therefore, implementation of this change will not result in more severe consequences than those considered in the SAR.

2. The implementation of the proposed change to the North Anna Power Station UFSAR does not create the possibility of an accident of a different type than was previously evaluated in the SAR. The UFSAR revision updates the Doppler reactivity coefficient assumptions to be consistent with the current accident analysis basis as described in each Chapter 15 accident section. Implementation of the UFSAR change does not create the possibility of an accident of a different type than was previously evaluated in the SAR.

3. The implementation of the proposed change to the North Anna Power Station UFSAR will not reduce the margin of safety. The proposed UFSAR change does not change the plant configuration or mode of operation. The transition from a Doppler power coefficient to a Doppler temperature coefficient has been explicitly analyzed for all accidents that are sensitive to the fuel reactivity feedback. Further, those revised accidents with the DTC have been incorporated into the plant UFSAR. The UFSAR accidents show margin to the applicable event acceptance criteria, which ensures that the current margin of safety in the Technical Specification basis is maintained. Therefore, the margin of safety will not be reduced by the implementation of the summarized changes.

99-SE-OT-35

Description

North Anna UFSAR Change Request No. FN 99-028

UFSAR Change Request No. FN 99-028 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss the North Anna Power Station (NAPS) Gaseous Waste Disposal (GW) System. This package is a result of the Integrated Configuration Management Project review of NAPS's GW system.

Summary

The following 2 editorial/administrative changes are proposed. (Proposed changes are identified by change subitem number.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any GW system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

\# 3 Revise Figure 5.2-13 to correctly identify Xe-133 as the relevant isotope on the gaseous monitor portion of the curve. This is an editorial change to revise "Xe-183" to the correct isotope of "Xe-133" which is the reference isotope per Regulatory Guide 1.145 for containment gaseous radiation monitors.

\# 4 Revise the following identified UFSAR sections to implement proposed editorial/administrative corrections as follows:

a) Revise Section 11.3.2 to correct the wording in the description of the waste gas disposal system piping configuration to reflect the capability to collect "and" filter vapors from tanks containing radioactive liquids. Also, add the reference to Figure 11.3-1 which further illustrates the system. This proposed revision correctly describes the waste gas disposal system piping configuration, including the filtering capability. Drawings 11715-FM-97A and 11715-FM-97B show the GW system. Various tanks which contain radioactive liquids are vented to the process vent which is a subsystem of the GW system. The effluent from the process vent is filtered prior to release. Therefore, it is proper to state the waste gas disposal system "collects and filters" vapors from various tanks. This proposed change is consistent with the original FSAR text.

b) Revise Section 11.3.2 to clarify the process of releasing waste gas into the process vent system. Drawing 11715-FM-097B shows the flow of the gases from the waste gas decay tanks to the process vent system. This drawing shows the waste gas decay tanks discharge into the process vent system where the discharge is mixed with dilution air from the auxiliary building. It also shows the process vent blowers draw a suction on the system and will discharge the mixture through the discharge nozzle. Procedure 0-OP-23.2 specifies the waste gas decay tanks operating pressure is less than or equal to 110 psi and when a discharge is required, the gas is discharged at a flow rate of less than 3 scfm. The pressure in the tank causes the gas to flow from the waste gas decay tanks to the process vent system and not the suction of the process vent blowers. This change is a clarification and does not involve an alteration of the process vent subsystem or the release methods of the waste gas decay tanks.

c) Revise Section 11.3.2 to refer to Section 11.4 as the section that contains the discussion of the particulate and gas process monitors for the gaseous release points. The reference to Section 11.6 is incorrect since it is the section dealing with the Radiological Environmental Monitoring Program (REMP) and, although related, it is not the intended UFSAR section reference.

d) Revise Section 11.3.5.2 to more accurately describe the location of the boron recovery tanks and their surrounding seismic dikes. Correctly identify Section 3.8.1.1.8 as the section that provides details on the seismic status of the tanks and related dikes. This re-write of the introductory paragraph of Section 11.3.5.2 accomplishes two items. First, it identifies the size of the tanks and clearly identifies that they are in an enclosure. Second, it correctly refers to Section 3.8.1.1.8 as the section that provides the seismic status of the tanks and the associated dikes that the tanks are located in. The tank size is added information in this proposed change, but it is not new information, since it is also located in Table 9.3-7 and later on in Section 11.3.5.2. All other changes are for accuracy and readability.

e) Revise Section 11.3.5.3 to state that the boron recovery test tanks are above the "underground portion" of auxiliary building. The boron recovery test tanks are external to the auxiliary building and above the underground portion of auxiliary building. This is clearly shown on drawing 11715-FM-7F (C-5). This is a clarification only to ensure that it was not implied that the boron recovery test tanks were on the auxiliary building roof.

f) Replace the term "loop room" with "steam generator cubicle" in Section 15.4.7.2.4.2. The term "loop room" is not used anywhere else in the UFSAR. This area is routinely referred to in the UFSAR as a "steam generator cubicle."

Summary:
The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.
Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following 14 non-editorial changes are proposed. (Proposed changes are identified by change subitem number.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

\# 1 Revise Section 2.3.5.1 to correct the exponent in the value of the population center radius Chi/Q. Table K-II.4.1 in Appendix K of the Applicant's Environmental Report specifies that the value of Chi/Q at the population center radius (23.5 miles (37,821 m)) is 2.78×10^{-9} sec/m^3. The original FSAR had the value of 2.8×10^{-8} sec/m^3. This value is conservative in that it would yield higher values in a dose calculation. A SWEC memo dated November 7, 1972 endorsed the use of 2.78 X

10^{-9} sec/m^3 as the Chi/Q value used in Calculation RP-11715-021-1. This calculation evaluates the offsite doses as part of an assessment of various charcoal filter decontamination factors. The reference in both the calculation and the memo is to a NUS report which supported the Chi/Q values used in the original licensing process for North Anna.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting a value of one of the specific dispersion factors in the UFSAR at the population center distance and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

2 The catalytic hydrogen recombiner in the waste gas system is no longer used. Some of the controls and indications for the system have been physically removed, although the system is not officially designated as "abandoned-in-place." UFSAR Change Package FN 95-031 (Rev 34, Version 5) removed the majority of text regarding this equipment but left information that it had been installed, but is no longer used. This change package was supported by Safety Evaluation 97-SE-OT-07. The items identified below also address the removal of the catalytic recombiner from service.

a) Revise Section 3.1.3.2 to remove the option of using the waste gas hydrogen recombiner. The proposed change to Section 3.1.3.2 removes an unnecessary reference to the catalytic recombiner since it is no longer available for use. Leaving this text in this section would erroneously imply an option to use the system to process excess hydrogen gas which is no longer available.

b) Revise Table 3C-3 to identify the catalytic recombiner as "(Not Used)." Since the catalytic recombiner has not been physically removed from the plant and it currently retains a valid mark number, it is retained in the table. Also, for accuracy, revise the floor elevation for the catalytic recombiner to 259'-6 in the same table entry. This floor elevation is shown in Drawings 11715-FM-2B and 11715-FM-2F and was incorrect in the original FSAR.

c) Delete the words regarding the catalytic recombiner from UFSAR Section 9.5.10.3 and add a statement that the recombiner is no longer used. This proposed change removes an unnecessary reference to the recombiner since it is no longer available for use. Since the waste gas catalytic recombiner is no longer used, the skid is secured and the nitrogen isolation valves are closed at all times. No radioactive gases are processed through the skid, therefore, any failure of the system due to a seismic event has no radiological consequences.

With the exception of floor elevation change in b) above, the changes proposed here should have been included in FN 95-031 and are supported by the Safety Evaluation 97-SE-OT-07. The floor elevation change is an administrative change to correct a typographical error and has no safety significance. Accordingly, this item will not be considered further in this safety evaluation.

5 Revise Section 11.3.5.10(2) to correct the partition factor from 10^4 to 10. Primary-to-secondary leakage in the plant coolant systems establishes the potential for radioactivity in the main steam and auxiliary steam systems. Calculation RP-11715-A86 evaluates the potential releases from this source and specifies that the partition factor for the reflashed steam from the heating system and auxiliary steam drain receiver vents is 10. The calculation also specifies a plateout factor of 2. This yields an overall reduction of .05. This overall reduction is consistent with the original FSAR statement. The original FSAR does, however, state the partition factor as 10^4 which is not internally consistent.

The value of 10 is both more reasonable and has been used in the data provided in the SAR documents. Since 10 is the value used in the release estimate calculations, 10 should be the value stated in the UFSAR as the appropriate assumed partition factor.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting an individual value which was incorrectly stated but that did not alter the composite iodine reduction factors used in the UFSAR evaluations and the change does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

6 Revise Section 11.3.2 to reflect the actual height of the process vent above the containment structure. Drawing 11715-FP-28A shows the elevations of the containment structure and the top of the process vent. The difference is 21 feet. Since the top of the process vent is not explicitly drawn in this drawing, the qualifier "approximately" is used. The elevation being greater than the originally stated 10 feet is a beneficial change from the viewpoint of dispersion of the waste gases being released from the process vents.

Per RG 1.111, the height of the process vent is not adequate to be considered as an "elevated" release point. However, because of its height and its velocity, it is considered a "mixed mode" release. This proposed change in process vent height does not change the classification of the gaseous release point.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the process vent stack in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since the release point treatment is unchanged, and no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

7 Revise Section 11.3.3 to clarify the fact that the manual action taken would be to re-initialize the gaseous release and not the process vent subsystem. The current UFSAR statement is unclear as to what is manually restarted following the automatic termination of any releases from the waste gas decay tanks or the containment by the process vent radiation monitors. The process vent system is not automatically secured due to a high radiation alarm from the radiation monitors. The radiation monitors do secure the releases from the waste gas decay tanks and/or the containment vacuum pumps. Both of these release paths require manual operations to re-open the valves and re-initiate the release. Procedure 0-OP-23.3 starts and stops the process vent system. Manual re-initiation of flows to the process vent are controlled by 0-OP-23.2 for the waste gas decay tanks and 1/2-OP-19.2 for the containment vacuum pumps.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves the clarification of the actions described in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

8 Revise Sections 11.3.3 and 11.4.4.2 to state that the "as presented" assumptions in UFSAR Section 11.3.5 (which were used to develop Tables 11.3-2 and 11.3-3) do not currently reflect actual waste gas system operations and process parameters. Also, clarify in this section that the ODCM is the method used to comply with the current licensing basis for effluent releases. Tables 11.3-2 and 11.3-3 were developed based on assumptions that were premised on expected plant operations. SWEC calculations 11715-RP-A86-0, 11715-RP-A88-1, 11715-RP-A89-1, 11715-RP-A90-0, and 11715-RP-A92-2 list these assumptions that were used in the development of the design and expected cases of estimated gaseous effluent. These assumptions are also listed in Section 11.3.5. The estimated effluents were evaluated for the potential impact on offsite dose and were used as the basis to demonstrate that the designed gaseous waste disposal system was adequate to comply with the regulations at the time of licensing. In the SER for North Anna's Operating License (OL), NUREG-0053, the NRC stated that the design of the gaseous waste system was acceptable since it was in "conformance" with applicable regulations and guides. The specific isotopic values of the releases or the estimated offsite dose were not specified as the acceptance criteria. The OL had Technical Specifications (OL, Appendix A) and Environmental Technical Specifications (OL, Appendix B) to monitor the liquid and gaseous waste effluents and assure continued conformance with the regulations.

Since the issuance of the OL, the regulations have changed. Appendix I to 10 CFR Part 50 for ALARA has been implemented. North Anna still conforms to these regulations. In the early 1980's, in conjunction with the guidance from NUREG-0472, NAPS implemented an Offsite Dose Calculation Manual (ODCM) as the method used to demonstrate continued conformance to effluent regulations. The ODCM was NRC approved via TS Amendment Nos. 48 and 31 for Units 1 and 2, respectively. This amendment also removed the radiological component of the Environmental Technical Specifications since they were incorporated into either the plant Technical Specifications or were included in the ODCM. Currently, the ODCM is the means by which monthly evaluation and dose projections of liquid and gaseous effluent releases are performed and documented.

Procedure HP-3010.032, "Radioactive Gaseous Waste Accountability and Dose Calculations" is used in conjunction with the ODCM to monitor conformance to the gaseous effluent regulatory limits. This procedure sums the isotopes, sums the release points, accounts for release modes, and applies release dose rate factors (RDRFs) to obtain gamma air doses, beta air doses, and critical organ doses for comparison to the acceptance criteria of the ODCM. Individual source locations and isotopic distributions are not significant since it is the composite of all these factors that is compared to the limits contained within the ODCM. Likewise, the individual contributions of each of the various assumptions used in the original gaseous effluent estimates are also not significant with regards to the total releases.

The gaseous release estimates in Table 11.3-2 or 11.3-3 have never been the licensing basis for the gaseous waste disposal system. In fact, the values in these tables are relatively low compared to the regulatory limits that do define the licensing basis for the North Anna effluent releases. To demonstrate this, the Integrated Review Team (IRT) conservatively evaluated the release of the expected case total curies per year from Table 11.3-3 as a "ground release" via the methods of procedure HP-3010.032. The mrad values determined were a small fraction of the dose acceptance criteria in the ODCM which is consistent with the limitation in 10 CFR Part 50, Appendix I.

The proposed change is intended to acknowledge and document the assumptions used to develop the initial estimates of gaseous effluent releases. It is intended, also, to clearly state that the ODCM is now the approved method for demonstrating compliance with current NRC regulations and that the original assumptions and estimates are not the release limits for the station.

Since the proposed change does not involve physical changes to the facility and procedures are in compliance with the current licensing basis, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves clarifying the relationship between the initial estimates of effluent releases and clearly defining the method of compliance with the effluent regulations in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

9 Remove the reference to the process vent in Section 11.3.3.2 regarding the relief valve discharges. The correct configuration is shown on drawings 11715-FM-097A/B and 11715-FB-006A. A modification to this system was made via DCP 84-47. The modification was related to RG 1.97 instrumentation and dealt with the fact that the flow transmitter in the process vent, 1-GW-FT-108, did not have adequate capacity to measure the flow from the relief valves. The relief valve discharges were re-located to ventilation vent B. Ventilation vent B has a much higher flow capability than the process vent. The safety evaluation for DCP 84-47 specifically addressed the re-location of this relief valve discharge.

Since the proposed change does not involve a physical change to the facility that has not already been approved or require any procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the waste gas decay tank relief valve discharge location in the UFSAR and does not involve any additional physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

10 Revise Section 11.3.5.3 to state that the overflow lines from both boron recovery test tanks tie together, but drain to the low level liquid waste system. Calculation 11715-20N calculated the overflow sizing required for the boron recovery test tanks and specifies they will overflow to the low level liquid waste tanks. The system arrangement is shown on 11715-FM-86C, Sheet 2. The overflow lines from the boron recovery test tanks do connect together but they also drain through a common check valve to the low level liquid waste tanks. The current UFSAR statement is inaccurate in that the boron recovery test tanks can flow to each other through the overflow lines, but the primary overflow protection will be via the gravity feed through the check valve and to the low level liquid waste tanks for treatment by the liquid waste disposal system.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the boron recovery test tank overflows in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

11 Revise Section 11.3.5.6 to revert back to the original assumptions from the FSAR for the high level liquid waste tanks which supports the basis of Tables 11.3-2 and 11.3-3. RP-11715-A88 is the calculation for the xenon releases from the high level liquid waste tanks. A revision was made via UFSAR change Package 94-010 that revised these numbers to be consistent with operational experience. The intent of these volumes in the UFSAR was not to be "actual operating data." Instead, these values were to be the estimates assumed as part of the analysis to develop UFSAR Tables 11.3-2 and 11.3-3. The original assumptions from calculation RP-11715-A88 are the appropriate values to be indicated in this section of the UFSAR. If the gaseous waste release estimates are revised based on a new set of assumptions, then it would be necessary to update this section to the new assumed values.

A proposed change to Section 11.3.3 (Refer to Subitem # 8 which is also part of this change package) contains additional basis statements which addresses the differences that may exist between analysis assumptions related to routine operation and actual operating values.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description in the UFSAR of the high level liquid waste tanks annual volumes to there originally estimated values and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

12 Revise Table 11.3-1 to correct the design parameters information for:

a) Drawing 11715-FV-52A shows the specifications and details for the waste gas surge tank. The specifications indicate the operating temperature to be 200°F instead of the 150°F stated in Table 11.3-1. The waste gas surge tank has no temperature indication or alarm, therefore the operating temperature is not a significant parameter. This proposed change is to ensure consistency between UFSAR and the design documents. Drawing 11715-FV-31A shows all the detail for the waste gas decay tanks except the tank sizing which was determined by calculation 11715-PE-015. The footnote regarding the low end design pressure for the waste gas decay tanks is added to clarify the relationship between the inner and outer tank pressures.

b) The process vent blower: Specification NAS-56 provided the specifications for ordering the process vent blowers. Calculation 11715-N158 performed a calculation to determine the flow of the blower at the required differential pressure. The calculation determined the flow was 307 cfm at a suction pressure of 14.24 psia and a discharge pressure of 15.89 psia. The design pressure was changed to discharge pressure to correspond with the blower requirements specified in the calculation and specification. Design pressure is not a relevant parameter for a fan blower.

c) The HEPA and activated charcoal elements: The current Table 11.3-1 entry for the filter assemblies mixed the design data for the two filters types (charcoal and HEPA). The table is currently unclear which requirements are associated with which filter. This proposed change separates the two types of filter media and presents the design data per the Specification NAS-262. The existing data does not adequately define the design parameters for either of the two filter types. The current UFSAR data is, therefore, potentially misleading since it is not possible to distinguish between the design data of the HEPA filter versus the design data of the charcoal filter.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting and clarifying the description of the component design information in the UFSAR for various pieces of the gaseous waste disposal system and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

13 Figure 11.3-1 is a schematic or a representation of the North Anna waste gas disposal system. The corrections made are proposed to the same level of detail, that is, schematic in nature.

Revise Sheet 1 of Figure 11.3-1 to: 1) accurately reflect the fact that the catalytic recombiner is not used at North Anna and 2) the discharge of the waste gas surge drum relief valves goes to ventilation vent B. The left side of the figure shows two flow inputs from the stripper surge tank relief valve that discharge to the recombiner. The catalytic recombiner is no longer used at North Anna. (Refer to Subitem # 2 in this change package). These relief valves actually discharges to the ventilation vent B as shown on drawings 11715-FM-086A and 11715-FM-097B. Also, the relief valves from the waste gas surge drum are reversed as shown and should depict relief into the header going to Ventilation vent B.

Revise Sheet 2 of Figure 11.3-1 to correctly identify of the source of the nitrogen bleed flow as the "SAFETY INJECTION ACCUMULATOR TANK" not the "SAFETY INJECTION TANK." Per drawing 11715-FM-096B, sheet 2, this rewording reflects the proper title of the source tanks. Also, revise Sheet 2 of Figure 11.3-1 to show the proper configuration for the process vent piping drain lines. Each process vent line embedded in the containment wall has a drain line attached. This is shown in drawing 11715-FM-097B, Sheet 2. The current figure shows both drain lines connected to only one of the vent lines. The proposed change is to show the correct drain line configuration, i.e., one from each vent line. Finally, revise Sheet 2 to identify the filter assembly as a HEPA/charcoal filter. Drawing 11715-FM-097B, Sheet 2 identifies the filter assembly as a charcoal/particulate filter. The specification for the filters, NAS-262, identifies the particulate as a HEPA filter.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves providing a more accurate schematic representation of the gaseous waste disposal system in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

14 Revise Table 11.4-1 to include the footnote for local readouts and alarms on the entries for the containment particulate and gas radiation monitors (1/2-RMS-RM-159/259/160/260). Consistent with Specification NAS-0234, the containment particulate and gas monitors have local alarms and readout indications. This is shown on Test Loop Diagrams 11715-RM-042/043 and 12050-RM-012/013. Visual confirmation has been made, by the North Anna RM System Engineer, that the containment particulate and gas monitors do have these local indication and alarms.

The capability for local readouts and alarms has not been added to the containment monitors, but was part of the original system design. The original FSAR did not, however, acknowledge this feature. Additional readout and alarm capability is not a safety or licensing basis concern since it does not diminish the system requirements or capabilities as identified in the original plant licensing basis.

The containment particulate and gaseous monitors are the same type monitors and skids used in the process vent monitors (1-RMS-RM-101/102) and the ventilation vent A monitors (1-RMS-RM-103/104). The process vent and ventilation vent A systems do not have local readouts and alarms and were correctly marked in Table 11.4-1.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the local readout capability of the containment particulate and gas monitors in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

15 Revise Section 12.2.4 to remove reference to a local alarm function for the gaseous and particulate monitors on the multi-port sampler, the process vent, and the ventilation vents. The Kaman particulate and gas monitors do have a local alarm. Test Loop diagram drawings 11715-RM-032, 033 indicates each multi-port particulate and gas monitor will transmit a signal to the control room where it will be detected, recorded and activate audible and visual alarms. No local signal is identified. The Test Loop Diagrams for the process vent particulate and gas monitors (RM-013, 014) and the two ventilation vents particulate and gas monitors (RM-030, 031, 048, 049) show the same configuration. There are no regulatory requirements or guidance that require local alarms on these particulate and gas effluent monitors. The required monitoring via control room indications are provided and comply with General Design Criteria 64 (10 CFR Part 50, Appendix A).

Visual inspection by the North Anna RM System Engineer has confirmed that there is no local visual or audible alarms at the 1-GW-RM-101/102, 1-VG-RM-103/104, 1-VG-RM-112/113, or 1-VG-RM-105/106 monitors.

UFSAR Table 11.4-1 (and its original FSAR counterpart) does not indicate that the above listed monitors have local readouts and alarms. Likewise, Specification NAS-0234 did not require such local indication except on the containment particulate and gas monitors. These containment monitors do have local alarm functions available (Refer to Subitem # 14 in this change package).

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the local readout capability of the particulate and gas monitors for the multi-port monitors and the process and ventilation vent monitors listed in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

#16

Revise 11.3.3 to specify that releases from the tank vents go to the process vent not ventilation vent B. FN 97-36 revised this statement to say that the tank vents went to ventilation vent B and that they would be manually isolated, if necessary. This is incorrect. Only relief valves from various tanks and process equipment are routed to ventilation vent B. The tank vents for tanks containing potentially radioactive liquid operate at atmospheric pressure (with minor fluctuations due to tank volume changes) and are ventilated with a "sweep gas" that is released via the process vent system. Ventilation vent B only has the relief valve and would not normally be manually isolated during a high activity release since if they were the source of the activity, they would be performing their safety function of pressure relief.

Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involve correcting the description of the tank vent location in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients that have not been previously reviewed by the NRC. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined to not represent an unreviewed safety question.

99-SE-OT-36

Description
North Anna UFSAR Change Request No. FN 99-031
UFSAR Change Request No. FN 99-031 contains a list of changes, some of which are editorial in nature, that need to be corrected or clarified in the UFSAR sections that discuss North Anna's DC Power (ED) System. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's DC Power system.

Summary
The following editorial changes are proposed. These changes are intended to enhance clarity and do not alter the technical basis of the UFSAR description. The changes do not affect any DC system components or any other SSC's operation or performance. The changes do not result in an unreviewed safety question.

Item # 2
Relocate part of the station battery description. The two sentences being relocated involve a description of the cells associated with the station batteries. The sentences are within a paragraph discussing a description of the controls and alarms available in the main control room. The sentences are being relocated within the same section to the paragraph describing the station batteries. The wording is being changed slightly to maintain the flow of the paragraph. The technical information associated with the batteries is not altered by this change.

Item # 4
Identify that the description of the Quality Assurance Program during the construction and preoperational phases is located in Chapter 17 of the FSAR and not the UFSAR. The descriptions of the Quality Assurance Program during the construction phase were originally contained in FSAR Section 17.1. The descriptions of the preoperational phase were contained in FSAR Section 17.2. These sections have been removed from the UFSAR and Section 17.2 has been replaced with the NRC-approved Operational Quality Assurance Program. To preserve the reference to the construction and preoperational programs, the statements in the UFSAR will specify that they are described in the original FSAR. A similar change has been made by UFSAR Change Request FN 99-002 and was supported by safety evaluation 99-SE-OT-08.

The above editorial changes are within the current design and licensing basis of the facility. The changes do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, these proposed changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

The proposed editorial changes do not involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above proposed UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, these proposed changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed.

Item # 1

Revise the description of the station battery chargers. The UFSAR currently states that the nominal output load current for the station battery chargers is 225A at 132VDC. This is based on the original design requirements for the chargers, NAS-0286. However, 225A is not a typical charger output current during normal operation. The actual operating current for each charger is different depending on the associated bus loading. The vendor technical manual for the charger, 59-G630-00002, does not indicate a nominal output current or voltage. The manual specifies a maximum continuous output current of 250A and an output voltage range of 126-147 VDC with an input voltage range of 414-506 VAC which corresponds to 460±10% VAC. Revising this statement will remove ambiguous information that might be subject to interpretation differences and will correct values to match the vendor information. In addition, the next statement will be connected to this one to form a paragraph instead of two stand alone sentences. This last change is purely administrative and has no effect on the technical content. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Item # 3

Revise the description of the operation of the swing battery charger to reflect that it can be used in place of one of the normal battery chargers instead of in parallel with one of the normal battery chargers. The UFSAR currently states that the swing battery charger can be used in parallel with the normal battery chargers. While this is physically possible, procedures 1/2-OP-26.4.3 (Main Station Swing Battery Chargers 1C-I and 1C-II / 2C-I and 2C-II Operation), specifically prohibit operating the swing charger in parallel with the normal charger due to voltage control concerns. The procedures state in the precautions and limitations section "The Main Station Battery Chargers must NOT be paralleled with the swing battery chargers." DR 90-1330 was written to document a blown fuse on an inverter that occurred during the process of transferring from the normal charger to the swing charger. The root cause evaluation associated with the DR identified that unless the voltage control cards on the chargers were connected together, the two chargers would alternately load and unload. During this process, the voltage level on the bus would momentarily increase and cause the inverter fuse to blow. The solution was to administratively prohibit parallel operation of the chargers. The operational procedures were modified but the UFSAR was not changed. DCP 95-013, supported by Safety Evaluation 95-SE-MOD-56, modified the electrical system to allow using the swing charger in place of the normal charger. In order to operate the chargers in parallel, a DCP would need to be implemented to install a wire connecting the voltage control cards of the two chargers. The proposed changes do not involve physical changes to the facility or require any procedural changes, since the existing procedures already limit how the system can be operated. Operation of the chargers in this manner is consistent with the design of the system. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change involves increased controls on how the system is operated from that currently described in the UFSAR, there is no possibility of creating an accident of malfunction of a different type that previously evaluated in the safety analysis. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. These changes do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

The proposed changes do not involve a physical alteration of the plant or a change in the methods used to respond to plant transients. Item #3 does alter the description of how the plant may be operated relative to the use of the swing chargers as described in the UFSAR, however the limitations are already administratively controlled. The UFSAR currently indicates that the swing charger may be used in parallel with the normal charger. This is not possible without the implementation of a design change to allow connecting the voltage control cards of the chargers as described above. This change does not allow a method of operation different from that already allowed. No new or different equipment is being installed and no installed equipment is being removed. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-37

Description
Temporary Shielding Request 99-TSR-029
It is proposed to install 30 pounds of temporary lead blanket shielding to operable/operating 2” diameter Safety Related CVCS piping at a tee directly above valve 2-CH-15 (1B Mixed Bed Demin Resin Discharge Isolation Valve).

Summary
Temporary Shielding Request 99-TSR-029 will install 30 pounds of seismically qualified lead blanket shielding to operable/operating 2” diameter Safety Related CVCS piping at a tee directly above valve 2-CH-15 (1B Mixed Bed Demin Resin Discharge Isolation Valve). The shielding will be installed and removed under the VPAP-2105 Temporary Shielding Program. The proposed activity will not:

- increase the probability of occurrence for a seismic event,
- increase the consequences of a seismic event,
- create the possibility for an accident of a different type

No postulated equipment failures could be identified which are associated with temporary radiation shielding near the 1B Mixed Bed Demineralizer.

There are no applicable Technical Specification basis descriptions; therefore, the margin of safety will not be affected by the proposed activity. The proposed activity will be conducted in compliance with VPAP-2105 in order to satisfy Technical Specification 6.11. No changes to the Operating License or Technical Specification are required.

Applying 30 pounds of lead blanket shielding around the outside of a 2” CVCS system pipe tee will have no affect on any station operations following a fire.

There are no discernable environmental concerns associated with the proposed activity.

99-SE-OT-38

Description
Engineering Transmittal SE-99-043, Rev.0
WP-M13, Rev. 1
During Refueling Outages, temporary trailers are used on the Turbine Building Operating Floor, elevation 303'. The insurer, N.E.I.L, requires these trailers to have sprinkler systems. In order to supply fire protection water to these sprinkler systems, a temporary modification is necessary. The temporary modification consists of connecting a wye valve (one inlet, two outlets) to one or more hose stations on the Turbine deck and supplying the sprinkler system via one outlet, and the existing fire hose via the other outlet. The engineering transmittal provides the necessary information to allow procedure WP-M13 to be revised to perform this temporary modification each outage.

Summary
During Refueling Outages, temporary trailers are used on the Turbine Building Operating Floor, elevation 303'. North Anna Power Station's insurance provider, N.E.I.L, requires these trailers to be sprinklered. In order to supply fire protection water to these sprinkler systems, a temporary modification is necessary. The temporary modification consists of connecting a wye valve (one inlet, two outlets) to one or more hose stations on the Turbine deck and supplying the sprinkler system via one outlet, and the existing fire hose via the other outlet. The engineering transmittal provides the necessary information to allow procedure WP-M13 to be revised to perform this temporary modification each outage.

The major issues considered were fire scenarios and flooding from equipment damage. The use of the wye valve allows the fire hose stations to remain operable. In addition, each outlet is individually isolable, which would allow the responding fire brigade to isolate the temporary sprinkler system or open the fire hose outlet, if necessary. Armor wrapped hose will be used to supply the sprinklers within the temporary trailers. This armor wrapped hose will provide protection from damage comparable to hard piping. The temporary modification will ensure compliance with the insurer's requirement for sprinklers within the temporary outage trailers. In addition, it will provide automatic fire suppression to new hazards introduced during the refueling outage.

License condition 2.D. (3). u allows the Licensee to make changes to the fire protection program if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire. The temporary modification will not impact the ability to achieve and maintain safe shutdown in the event of a fire. 10CFR50, Appendix A, General Design Criteria (GDC) 3, discusses the minimum level of fire protection that must be maintained at the station. This change will not eliminate any fire protection system or equipment. All systems and equipment relied upon to meet Appendix R requirements will continue to be in place and operable. There will be no adverse impact on the station's compliance with GDC 3. This change does not create an unreviewed safety question since the temporary modification does not impact the probability of occurrence for an accident, the consequences of an accident, or the probability or consequence of equipment malfunction. Margins of safety as defined within the Technical Specifications are unaffected. The temporary modification does not require a Technical Specification or Operating License change.

99-SE-OT-39

Description

North Anna UFSAR Change Request No. FN 99-030

UFSAR Change Request No. FN 99-030 contains a list of changes, some of which are editorial in nature, that need to be corrected or clarified in the UFSAR sections that discuss North Anna's chemical and volume control system. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's chemical and volume control system.

Summary

The following editorial changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any chemical and volume control system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub # 1

Update mark number to unit-system-component-ID format. These changes enhance consistency of format within the document, as well as assisting electronic search capability. No changes are made to the technical content of the UFSAR.

Change Item Sub # 3

Make the following enhancements to Tables 3.9-2, 3.11-1, 3C-3, and 5.2-19:

a) Change the function description of SV-1551 from "pressure relief valve" to "pressurizer safety valve." As correctly indicated in the valve type in this table, these are safety valves and not relief valves.

b) Change the description of TV-1204A and B to show they are letdown line containment isolation valves for accuracy and consistency with Table 3.9-2. Change the description of HCV-1200A, B, and C to differentiate their function from TV-1204A and B. Changing the descriptions enhances consistency within the document, and does not change the intent.

c) Correct the mark number for TV-1204 valves so that both containment isolation valves are represented. The current valve identification in the UFSAR is not specific, because there are two trip valves with the 1204 component identifier. Both are containment isolation valves, and the valve construction is of similar design. For accuracy and completeness, both valves are included in this table of valves required to operate in an accident.

d) Replace inappropriate abbreviations with the full spellings of the words. This is a format change to correct a non-standard abbreviation and does not alter the intent of the document.

e) Expand the description of the two-inch check valves to clarify that they are in the seal injection lines, as shown on station print 11715-FM-095C sh.2.

f) Delete the system abbreviation from the function of the valves. This change is administrative in nature, and is made for consistency within the document. The mark numbers identify the system involved, and the intent is understood without resorting to an apparent conflict or redundancy between the system mark number and the valve description.

Change Item Sub # 5

Replace description of pH control with a pointer to the redundant information, appropriately located in Chapter 9. This change reduces the administrative burden of updating information in more than one location in the UFSAR. No change to the technical content of the UFSAR results.

Change Item Sub # 6

Clarify the introduction to the chemical and volume control system design discussion. This change rewords the introduction to prevent misinterpretation. No change to the technical content of the UFSAR results.

Change Item Sub # 7

Clarify that continuous flow through the mixed-bed demineralizer is the normal flowpath, while allowing for the demineralizers to be bypassed. There are conditions during operation under which the mixed-bed demineralizers can be bypassed, such as low primary activity, or letdown temperature in excess of demineralizer tolerances. These conditions are already recognized in Sections 9.3.4.2.2.3, 9.3.4.2.4.11, 9.3.4.3.2, and 9.3.4.5 of the UFSAR. Therefore, this change does not alter the intent of the UFSAR, but enhances consistency between subsections.

Change Item Sub # 11

Change "boric acid tank" to "boric acid storage tank." This change supports consistent use of the tank name. "Boric acid tank" is from Westinghouse original documents. "Boric Acid Storage Tank" and "BAST" are commonly used by station personnel, operating procedures, and Technical Specifications.

Change Item Sub # 12

Make editorial corrections in various places. These changes improve readability, consistency, sentence construction and grammar without affecting the technical content of the UFSAR.

Summary:

The above editorial changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub # 2

Make the following corrections to Table 3.9-2, Types of Pumps and Valves:
a) Correct TCV-1204A, B to be trip valves, not temperature control valves. Changing the 1204 valves to be trip valves is a correction of a clear data entry error, because the description of the valves identifies them as containment isolation valves, not temperature control valves.

b) Change the description of FCV-1113B to make clear that it is for the VCT outlet, not the charging pump header.
c) Change description of MOV-1275A, B, C to clarify that they are mini-flow recirculation lines.
d) Change the line description of MOV-1373 to identify it as the header isolation in the recirculation line. These descriptions are accurate based on the valve locations as depicted on 11715-FM-095B sh.1 and sh.2.

e) Change PCV-1145 to be a pressure control valve, not a flow control valve. This valve is shown on 11715-FM-095A sh.4. There is no FCV-1145 in this system. This is correction of a data entry error, as evidenced by the associated description of "letdown low-pressure control."

These changes are enhancements to valve descriptions, or can be verified on station drawings. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve enhancing the description of the valves in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 4

Use correct station nomenclature for valve mark numbers and system designators. The current table in the UFSAR uses a system that identifies the type and location of the valve, instead of the actual valve mark number. In many cases, this is not a specific identification, as there are several check valves in a stretch of pipe that may fit the same type and location description. For this reason, the table is being revised to use actual valve mark numbers to clearly identify which valves are discussed. This also enables the reader to positively identify an affected valve without having to reference several controlled drawings, in order to understand to which valves the table applies. In the course of updating the mark numbers, several discrepancies have also been resolved.

1-CH-496 was added to the charging line after original construction, as requested in SWEC letter NAS-7570. Because it has the same design and operating requirements of the other two check valves included in the table, this check valve has been added, as well.

The seal injection lines each have two check valves in series. Both valves are installed in Q1 piping, and are operated and tested to the same requirements. They are all located within the reactor coolant pressure boundary. Since there are no significant differences in the two check valves in each line, both are being included in the table, increasing the total valves identified by this entry in the table from three to six.

Since the proposed changes account for physical changes previously made to the facility to reduce the consequences of a postulated pipe rupture, and the changes do not require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve new physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 8

Change the description of the excess letdown heat exchanger to limit use to be a replacement for normal letdown, not as a supplement to it, during plant heatup. 1-OP-1.3 has a note that states if reactor coolant pressure is too low to allow sufficient letdown flow, then excess letdown may be placed in service. This note is applicable early in the process of plant heatup, and not in the final stages, as currently stated in the UFSAR. A review of operating procedure 1-OP-8.5 shows excess letdown can be used in place of normal letdown - not concurrently, because normal letdown is isolated first. There is no procedure that uses excess letdown concurrently with normal letdown. It is preferable to use only one flowpath for inventory control, because that is a much less complicated means of operation. This reduces the burden on the operators maintaining control of inventory levels and flows, and allows easier diagnosis of improper system responses to equipment manipulations. Delete the sentence implying use of excess letdown to drain a hot isolated reactor coolant loop. A similar statement can be found in VRA-200/A, section 3.1.10, which seems to imply draining an isolated loop while at operating temperature. Two-loop operation is not permitted by Technical Specification 2.1.1 and therefore precludes the use of excess letdown for draining a hot isolated loop.

This is consistent with operating procedure 1-OP-5.4, which shows that a loop is drained only after the unit is cooled down. The proposed changes remove description of one optional procedure that is not in use at the station, and another procedure that would only be needed during two-loop operation, which is prohibited by Technical Specifications. Removing the description of these two methods of operation for excess letdown does not increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve removal of descriptions of unnecessary, undesirable methods of system operation in the UFSAR and do not require physical changes to the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 9

Change "readily calculated" to clarify that lithium buildup in the reactor coolant system is verified by analyzing letdown samples. The current coordinated lithium program requires that lithium be maintained within a tight control band (to within 0.15 ppm of the target lithium concentration). This is governed by VPAP-2201. The lithium is analyzed at least daily in accordance with VPAP-2201 and adjustments made (by the use of the cation bed) as determined by the analysis. As such, to state its buildup can be determined by analysis is more accurate than to state the buildup can be calculated. Note that the use of analysis to determine lithium content is currently contained in Section 5.2.3.2 (so this change is not introducing a new concept), but because change subitem #5 is deleting that section as redundant, the use of analysis for lithium content is being relocated into Chapter 9 by this change. It is acceptable to delete from the UFSAR the concept of calculating the lithium buildup because the primary coolant is sampled and analyzed frequently, in order to trend changes in primary chemistry content. Calculation of the lithium buildup is therefore unnecessary. The sample analysis is sufficient to trend and respond to changes in primary chemistry. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the process in the UFSAR and do not require physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no accident analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 10

Revise these paragraphs to be accurate for the system operation to include the boric acid valve modulating from the full open (standby) position to control acid flow, as opposed to modulating from the closed position, as it currently reads. The current description is incorrect. The concentrated boric acid control valve is a fail open valve that requires air to close. Thus, the valve is normally open and will modulate (in the closed direction) to a position required by the automatic control system during automatic makeup. Procedure 1-OP-8.3, Boron Concentration Control, confirms this operation. Keeping the boric acid flow control valve open while in standby is conservative. Any failures of this valve are likely to result in the valve failing open, rather than closed. Excessive addition of boric acid during a blend is much more conservative and preferable to an uncontrolled dilution. Since the proposed changes acknowledge that OPEN is the fail-safe direction for the valve that admits boric acid to the blender, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the safety-related pipes that flow borated water are heat traced to prevent the boric acid from plating out, there is no possibility that an excessive boration could create an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 13

Delete the phrase that states the makeup stop valve supplies the boric acid transfer pump. There is no makeup stop valve to the boric acid transfer pump. There is a flow control valve from the transfer pump, which is normally open, as discussed in change #10. Because that valve modulates to control boric acid flow, it cannot be the "stop valve" discussed in this paragraph. According to 1-OP-8.3, Boron Concentration Control, and station print 11715-FM-095B sh.1, the only valve which repositions from the closed position in the borate mode of operation is the blender outlet valve to the charging pump suction. This change allows that information to be clearly stated in the paragraph. Since the proposed change does not require physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The description being removed discusses a valve that did not exist in the original design, and is not discussed elsewhere in the UFSAR. Because removal of this description does not change the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. The limiting unplanned dilution events that could result from a valve or control malfunction are sufficiently covered in Chapter 15. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 14

Appropriately locate the piping statements, and remove reference to polytetrafluoroethylene as a liner for 1-CH-FT-1113. These statements regarding the charging and volume control system piping are being relocated. The source of the requirement for the system piping is VRA-200, the Westinghouse system description. The words in the VRA are identical to statements currently in section 9.3.4.2.4.22. Before being revised by DCP 94-246, the words in this subsection were identical to the words in Section 9.3.4.2.4.22, but the DCP only updated one location. Because these statements apply specifically to the piping, and not the system as a whole, the subsection for piping is a more appropriate location for them, particularly considering the potential contradiction in the following paragraph on this UFSAR page, which states, "All parts in contact with the reactor coolant are fabricated of austenitic stainless steel or other material of adequate corrosion resistance."
Polytetrafluoroethylene (PTFE) is a chemical term that is more detail than what is required to be maintained in the UFSAR. More commonly understood is Dupont's brand name for the material, which is Teflon. For that reason, "PTFE" is being replaced with "Teflon," as an editorial change. Additionally, the mark number is misrepresented in the text, and is being corrected to "1-CH-FT-1113" as the information is relocated. The mark number change is correction of an obvious data entry error, and therefore editorial in nature.

The above changes alone could leave the reader with the mistaken impression that only the Unit 1 flow transmitter contains the Teflon liner, which is not the case. In both units, the transmitters have a Teflon liner, because that has always been the insulator for this design transmitter. In each case, these transmitters are located in environmental zones that are not expected to be exposed to significant post-accident dose rates, and the indication from these transmitters is not required as a safety function in the post-accident environment. However, these transmitters do have a safety function of maintaining the pressure boundary of the associated piping (rated to 150 psig) because it is potentially part of the boric acid flow path for TS 3.1.2.1 and 3.1.2.2. The expected service life exposure for these transmitters, over 40 years, is 5.3 E3 rads. This value is based on Virginia Power letter to the NRC dated 5/10/85, and Calculation 13075-Pr(b)-023-0, "40 Yr. Normal Operating Doses to Various Areas for Equipment Qualification." The boric acid flow to the blender transmitter is located outside the VCT cubicle, which would correspond to Zone 3 in the calculation (described in UFSAR Table 12.1-1 as the outside surface of shielded tank cubes). The calculation confirms the 5.3 E3 value for service life radiation. Teflon is rated for 1.7 E4 rads before threshold damage occurs, according to EPRI NP-1558, "A Review of Equipment

Aging Theory and Technology," dated September 1980. Therefore, the use of Teflon in this location is not an operability issue.

Since this area is not exposed to a significant increase in radiation exposure during a post-accident environment, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because these transmitters are original equipment or equivalent to original equipment as discussed in DCP 94-246, "1-CH-FT-1113 Replacement," and because only the description of the equipment is being enhanced in the UFSAR, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 15

Revise the statement to clarify what charging pump auxiliary systems meet what NUREG-0578 requirements. SWEC performed a review of the components in areas likely to be exposed to high radiation fields after an accident. Due to the fission products that could end up in the sump after a LOCA while LHSI is supplying suction to the charging pumps, the charging pumps and all equipment located in the cubicles are subject to high post-accident radiation fields. Upon completion of SWEC's review, recommendations made for material replacements were implemented. DCP 80-44 evaluated the replacement of certain gaskets and O-rings that were not rated for the expected post-accident radiation fields, and found the replacement of parts to be acceptable. This change clarifies that it is specifically the charging pump support systems in the charging pump cubicle that are exposed to the post-accident radiation environment that meets the requirements in NUREG-0578. This change clarifies an unclear, global statement to one that more accurately reflects what equipment meets the applicable requirements. Since the proposed changes do not require physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes involve making the UFSAR statements more specific and more accurate, and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 16

Start the discussion of boric acid storage tank and RWST requirements with the qualifier "In Modes 1-4." The discussion is correct only for normal operation, defined as Modes 1-4. In MODES 5 & 6, a minimum contained borated water volume of only 1378 gallons for the BAST and 51,000 gallons for the RWST is required by Technical Specification 3.1.2.7. During shutdown the requirements are less restrictive because the unit is already cooled, shutdown and depressurized. Any accident that required the use of the boric acid tanks or RWST would be less severe than the same one starting from a hot, unborated condition. Therefore less borated water is required to be available to respond. Here the UFSAR is presenting the most limiting case, so this change clarifies the intent. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve specifying the applicability of the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since these changes are consistent with the accident analyses and technical specifications, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 17

Delete statement regarding what to do with the deborating demineralizer resin when regeneration is no longer feasible. Although regeneration is possible, and that capability is discussed in the UFSAR, it is not performed at this time. The UFSAR shows the spent resin is sent to the waste disposal system, as demonstrated in Figure 11.5-1 and 11.5-2. Deletion of this statement removes potentially misleading information. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 18

Change the description of seal water injection filters to clarify there is only one delta-P indicator for both filters. The word "each" seems to infer that there are two differential pressure indicators - one for each filter. There is only one differential pressure indicator, however, the filters are placed in service one at a time to allow for maintenance on a clogged or degraded filter. Since only one filter is normally in service at a time, each filter is monitored by a differential pressure indicator, but this wording is ambiguous. This change will clarify the intent. Since there continues to be differential pressure indication across the in-service filter, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve clarifying the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 19

Revise the description of coolant system and pressurizer heatup, with subsequent isolation of the residual heat removal system. The rewritten paragraph is an enhancement, to remove ambiguity and confusion over the heatup process. Isolation of the residual heat removal system is acceptable prior to having all three reactor coolant pumps in service by the Technical Specifications 3.1.1.3.1, 3.4.1.2, 3.4.1.3. This evolution and the procedures in place (1-OP-1.3) ensure that two reactor coolant loops remain available and one loop remains in operation at all times. Once a coolant pump is running, the normal letdown line has sufficient flow to control inventory and pressurizer pressure. Use of the residual heat removal to letdown valve is neither required nor helpful once the residual heat removal pumps have been secured. Procedural controls and good operational practice ensure that the steam generators are functioning as a heat sink prior to removing the residual heat removal system from service. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve operation of the systems in any manner different from their original design functions, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 20

Change table 9.3-5 to show only one cation bed demineralizer. The original design included only cation bed demineralizer, as shown in VRA-200/A. The cation bed demineralizer is not required for continuous service. Because it is used only intermittently, one demineralizer is sufficient to maintain Lithium chemistry within limits. Since the proposed changes do not require physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve correcting the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 21

Correct the capacity of BAST to 8000 gallons. Station curve 1-SC-5.3 and the original Westinghouse VRA-200/A both show the BASTs with a capacity of 8000 gallons. Changing the storage capacity available in the BAST is conservative, because it is an apparent increase over the available reserve of chemical shim. It is not an actual increase in available boric acid because the tanks were originally supplied as 8000-gallon tanks. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Because the changes are consistent with the basis for Technical Specification 3.2.1.8, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 22

Change Figure 9.3-5 to correctly illustrate the mixed bed bypass valve (in the closed position) and show the correct flowpath through the deborating demineralizers. This corrects the simplified diagram to match the original design, as shown in original FSAR Figure 9.3.4-1 sh.1, which is equivalent to what is currently reflected in station prints 11715-FM-095A sheets 3 & 4. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve correcting a simplified drawing in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 23

Revise Table 5.2-19 to delete the System column and Type of Actuation column as redundant information. Deletion of these two columns in this table removes redundant information, because the system can be determined from the mark number for the valve, and the type of actuation is either clear from the mark number, or can be found elsewhere in the UFSAR (such as in Table 3.11-1.) Add a note stating Unit 1 is shown, and Unit 2 valves are similar. Spell out phase A containment isolation in order to clarify in footnote (c) what CIA represents. Combine 1-CH-LCV-1460A and B in this table. Other format changes are made for clarity or consistency within the UFSAR, and do not affect content. Make the following corrections:

a) Correct the Operating Condition for 1-CH-HCV-1200A, B, and C to be 290°F. The current operating temperature of 650°F is clearly in error considering it is higher than the saturation temperature for 300 psig. This value is corrected to be the same as the operating temperature for 1-CH-TV-1204A and B, since station drawing 11715-FM-95C sh.1 shows that they are in the same section of pipe and subject to similar operating conditions. The control board logs, 1-LOG-4, confirm this is a reasonable approximation of the operating temperature for this portion of the system.

b) Correct the Design Condition for 1-SI-MOV-1869A, B to be 2485 psig. Passport references vendor drawing 11715-6.43-37 for these valves, which shows the design pressure (in Note 2) as 2500 psi max. For consistency, the number inserted into the UFSAR is 2485 psig, which is conservative.

c) Add 1-SI-MOV-1890D, with the same information as the 1890C valve. These are redundant valves, and as such, are similar in design, function and operation. They should be equally represented in the UFSAR. They can be found on station drawing 11715-FM-96A sh.2.

d) Remove reactor head vents and pressurizer vents from the table. As discussed in DCP 79-S69 and UFSAR section 5.5.10, a restriction orifice was installed in each line to be the reactor coolant pressure boundary. Station drawings 11715-FM-93A sh.3 and 11715-FM-93B sh.1 show the mark numbers for the reactor head vent and pressurizer vent valves, and show the boundary for the Q1/Q2 piping to be at the restriction orifice, upstream of the vent valves. A break of the downstream piping would result in leakage through the 3/8" orifice, which would be within the makeup capability of a charging pump, and would not result in a LOCA. These valves are not within the reactor coolant pressure boundary, and do not belong in this table. The valves are adequately covered in UFSAR section 5.5.10.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve correcting the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-40

Description

Technical Specifications 3(4).1.3.4, Rod Drop Time; Technical Specification Change Request #372 .
Change to Periodic Test Procedure 1(2)-PT-17.2, Rod Drop Time Measurement
UFSAR Section 4.2.3.4.2, Control Rod Drive Mechanisms; UFSAR Change Request #FN-99-046.
[1] The current Periodic Test acceptance limit for as-found rod drop time is < 2.13 sec for all RCCA's. It is proposed to change the acceptance limit to the following:

- All Control Rods EXCEPT 8 Control Bank A Rods: ≤2.03 seconds
- Each of the 8 Control Bank A Rods: ≤2.25 seconds
- AVERAGE of the 8 Control Bank A Rods: ≤2.03 seconds

[2] The following clarification will be added to the TS 3 / 4.1.3 BASES:
The surveillance criteria for measured drop times are adjusted downward from the LCO value to account for the potential effects of a concurrent seismic event on the RCCA insertion time.
The LCO itself will not change.

{3) UFSAR Section 4.2.3.2 will be updated to reflect the treatment of seismic effects in the rod drop test time criteria.

Summary

1.0 Introduction and Statement of the Problem

Current Virginia Power accident analyses for North Anna assumes a control rod drop time of 2.7 seconds from the time of breaker opening to dashpot entry. The drop times are measured every reload per SR 4.1.3.4 in the Technical Specifications. The actual acceptance criterion applied to the drop times is 2.13 seconds. Westinghouse provided this criterion to Virginia Power in June of 1990 (Reference 1). The 0.57 second margin is intended to cover analytical uncertainties, including the effects of a concurrent seismic event on the drop time. As part of an analytical effort to assess end of cycle temperature coastdown operations, Westinghouse reevaluated the rod drop times and has informed Virginia Power that the 0.57 second margin allowance might not be adequate for our current fuel designs. Virginia Power evaluated current operating cycles in Reference 2 and found all RCCA's to be operable in both units. Further technical background is provided below.

1.1Licensing Basis

On September 6, 1990 (Ref. 3), the USNRC issued OL Amendments No. 139 and 122, associated with North Anna Units 1 and 2, respectively. These amendments increased the control rod drop time requirements specified in LCO 3.1.3.4 from a previous value of 2.2 seconds to a new value of 2.7 seconds. This change to the allowable control rod drop time was requested to support a planned fuel design change from the Westinghouse Low Parasitic 17 x 17 (LOPAR) fuel assembly to a new 17 x 17 assembly with Westinghouse VANTAGE 5H fuel assembly design features. The new design, designated North Anna Improved Fuel (NAIF), utilizes Zircaloy grids and smaller diameter thimble tubes. The TS amendment request was made, and granted, on the bases that the increased drop time was required because of a reduction in thimble tube diameter associated with NAIF.

Discussions with Westinghouse during this same time frame revealed that the recommended increase in drop time from Westinghouse was primarily based on a methodology change to incorporate the effects of a seismic event on the calculated drop time, and not on the change to the fuel design. Since the 2.7 second drop time specified in new LCO 3.3.3.4 was assumed in the accident analyses supporting the LOPAR/NAIF transition (Reference 4), the question naturally arose as to whether or not the seismic effect should be taken into account by reducing the drop time surveillance test acceptance criterion from the 2.7 second value to a smaller value, since the seismic effect cannot be measured at the plant.

Ultimately, NA&F concluded that the seismic allowance should be subtracted from the 2.7 sec specified drop time to yield a surveillance procedure limit of 2.13 seconds. The 2.13 sec limit was documented by letter from Westinghouse (Reference 1).

A drop time criterion of 2.13 seconds, which reflects the Westinghouse recommendation is incorporated in the current surveillance test procedures 1(2)-PT-17.2, Rod Drop Time Measurement (References 1, 5,6).

The BASIS for LCO 3.1.3.4 reads as follows:

> The maximum rod drop time restriction is consistent with the assumed rod drop time used in the accident analyses. Measurement with Tavg >500 F and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a reactor trip at operating conditions.

The NRC SER (Reference 3) made specific reference to an increase in drop time, but not to a seismic allowance, since this was not discussed in our TS change request. Specifically, the SER states:

> The NAIF assembly guide tube thimbles have an 8 mil inner diameter (ID) and outer diameter (OD) reduction above the dashpot. The thimble tube ID provides adequate diametrical clearance for the control rods. The time to the dashpot for accident analyses has been increased from 2.2 seconds to 2.7 seconds.
>
> ...The accidents analyzed in the Updated Final Safety Analysis Report (UFSAR) which could potentially be affected by the NAIF reload were reviewed by the licensee. Accident transients for which the protection system trips the reactor within a few seconds after the transient begins were reanalyzed with the rod drop time of 2.7 seconds. These accidents were the loss of flow, locked rotor and rod ejection. The results of these accident analyses showed that the safety limits and criteria are satisfied for the increased drop time. Other non-LOCA accidents analyzed in the UFSAR were individually reviewed and were found to be minimally affected by the increased rod drop time.

- <u>Accident Analysis Basis</u>

Most of the accident analyses presented in UFSAR chapter 15 are insensitive to the control rod drop time. However, a few events are sensitive to the negative reactivity insertion rate caused by reactor trip and therefore to the RCCA drop time. These events are[2]:

- the complete loss of reactor coolant flow event
- the locked RCP rotor event
- the RCCA (Rod) ejection event

The accident analysis models treat the RCCAs in the aggregate, i.e. insertion of individual RCCAs is not modeled. So in this sense the safety analysis is sensitive only to the integrated effect of all 47 RCCAs (the most reactive RCCA is assumed not to insert at all). Therefore minor variations in individual RCCA drop times about the average drop time in the core will have a negligible impact on the reactivity insertion and power response to a trip.

In particular, note that variability in drop times of RCCA'S on the core periphery will have an insignificant effect because these rods have a minor contribution to overall trip reactivity. The significance of this observation will become clearer as the discussion proceeds.

The safety analysis (RETRAN) models use a trip reactivity vs. time curve that is synthesized from

1) A rod position vs. time curve that is based on a drop time to the dashpot of 2.7 seconds (i.e. the TS 3.1.3.4 limit), and
2) A conservative curve of trip reactivity vs. RCCA bank position.

Cycle-specific values of the trip reactivity vs. RCCA bank position curve are generated for every reload core and compared to the reference curve incorporated in the RETRAN models. The cycle specific curve is generated based on a conservative bottom-peaked power distribution, which maximizes the insertion delay. This comparison is documented in the Reload Safety Analysis Checklist. The Unit 1 Cycle 14 comparison is shown in Table 1, below[7]. The table presents integral control and shutdown bank worth vs. insertion position. As shown, the cycle specific curve shows significantly more reactivity insertion than the reference curve for every position. This margin reflects typical reload experience for North Anna cores.

1.3 Current Issue

As mentioned in the Introduction, in July 1999 Westinghouse performed a review of the potential impact of a proposed 10 F Tavg coastdown at hot full power. As part of that review, the impact of reduced temperatures on control rod drop times were investigated. Westinghouse requested recent control rod drop time measurement data (i.e. the information in Figures 3 and 4 of Reference 12). They use this data to adjust certain friction coefficients in the model that are empirically based. As these coefficients are increased, i.e. reflect longer measured drop times, the seismic allowance (which is in reality a code output and not an input) also increases.

When Westinghouse normalized their rod drop time code to the longest measured rod drop time of 2.06 seconds (RCCA B-6 in Unit 1 Cycle 14), (References 8,9) and included seismic effects, they found that the seismically adjusted drop time was 2.742 seconds, i.e. 0.042 seconds in excess of the accident analysis assumption for the average time for all rods.

Note also that all seismically adjusted rod drop times for N2C13 would be expected to fall within the 2.7 second limit.

It can be concluded that the 2.13 second rod drop time acceptance criterion currently incorporated into 1(2)-PT-17.2 is not adequate to ensure compliance with the safety analysis basis for control rod drop time in all conceivable cases. Specifically, a theoretical situation could exist where measured control rod drop times of 2.13 seconds for all 48 RCCA's would be dispositioned as acceptable, even though applying the Westinghouse seismic adjustment would result in a design drop time slightly in excess of the safety analysis limit.

2.0 Proposed Resolution

2.1 Revised Test Criteria

Based on a review of recent rod drop time test results, Nuclear Analysis and Fuel recommends that separate rod drop time criteria be applied to Control Bank A RCCA's and all other RCCA's. The location of Control Bank A rods near the core periphery has two effects which are relevant to this discussion:

- Because of higher outlet plenum cross flows in the vicinity of the outlet nozzles, the observed RCCA drop times in these locations have historically been slightly larger than for interior locations (Figures 3 and 4 of Reference 12).
- Because of the Virginia Power low-leakage loading pattern design philosophy, these peripheral RCCA's (particularly Control Bank A) make a minor contribution to overall trip reactivity.

To support the development of revised test criteria, Westinghouse performed the following calculations[10]:

First, the RCCA drop time model (Westinghouse DROP code) was adjusted to the following conditions:

* Mechanical Design Flow (105,200 gpm/loop)
* Design Core Bypass (6.5 %)
* Seismic allowance included
* Determined Guide Tube Hydraulic Factor (C2G) to obtain a RCCA Drop time of 2.7 seconds

Then, using the Guide Tube Hydraulic Factor, which produced a RCCA Drop time close to 2.7 seconds, the RCCA Drop time was recalculated at the following conditions:

* Measured Flow (104,027 gpm/loop)
* Best Estimate Core Bypass (5.1 %)
* No Seismic Allowance

Using the above as input to the DROP code, a calculated RCCA Drop Time of 2.03 seconds was obtained.
In the third case, the DROP model was renormalized to calculate an RCCA drop time based on measurement (non-seismic) conditions of 2.25 seconds.

In the third case, the DROP model was renormalized to calculate an RCCA drop time based on measurement (non-seismic) conditions of 2.25 seconds.

Then, using the normalization from this case, the drop time was determined using

* Mechanical design flow (105,200 gpm/loop)
* Design core bypass (6.5 %)
* Seismic allowance included

The calculated RCCA Drop time with the above conditions is 3.39 seconds.

The four analysis cases can be summarized as follows:
Summary

CASE	ASSUMED FLOW RATE (GPM)	CORE BYPASS %	SEISMIC EFFECT	Guide Tube Hydraulic Factor	DROP TIME (SEC)
A	105200	6.5	YES	F1 (Note 1)	2.7
B	104027	5.1	NO	F1	2.03
C	104027	5.1	NO	F2 (Note 2)	2.25
D	105200	6.5	YES	F2	3.39

NOTE 1: F1 Adjusted to give 2.7 sec drop time at specified conditions for Case A
NOTE 2: F2 Adjusted to give 2.25 sec drop time at specified conditions for Case C
Based on these results, the following revised test criteria are proposed:

- For all individual RCCA's except Control Bank A – drop time to dashpot ≤ 2.03 seconds
- For individual RCCA's in Control Bank A – drop time to dashpot ≤ 2.25 seconds
- For the average of 8 Control Bank A RCCA's - drop time to dashpot ≤ 2.03 seconds

2.2 Revised Reload Safety Analysis Treatment

Additionally, in performing Reload Safety Analysis Checklist (RSAC) trip reactivity calculations, either 1) no credit will be taken for the reactivity effects of Control Bank A RCCA's or 2) a conservatively calculated trip reactivity curve associated with delayed insertion of Control Bank A will be used. It is anticipated that Option 1) would normally be used because the contribution of Control Bank A to total trip reactivity is typically well within the available margin to the safety analysis assumption. Note that the drop time test criteria recommended above can be supported without this assumption. However, it will be imposed for additional conservatism since the individual RCCA drop time criterion is being relaxes from the current value of 2.13 seconds for individual Control Bank A RCCA's only.

2.3 Revised UFSAR Description

A brief clarification concerning the seismic adjustment will be added to UFSAR Section 4.2.3.4.2, Control Rod Drive Mechanisms. See Appendix C of Reference 12.

2.4 Revised Technical Specification BASIS Statement

A brief clarification concerning the seismic adjustment will be added to the BASES for TS 3 / 4.1.3.4, Reactivity Control Systems – Rod Drop Time. See Appendix D of Reference 12.

3.0 Safety Assessment

The proposed revised rod drop time test criteria will continue to meet all applicable safety and licensing bases for RCCA drop time. The bases for these conclusions are as follows:

- Virginia Power's current position of reflecting the safety analysis assumption for control rod drop time directly in the Technical Specifications and accommodating seismic considerations in the surveillance procedures is consistent with discussions held between the Westinghouse Owner's Group (WOG) and the USNRC-see Reference 11. The NRC has not been prescriptive in defining the methodology for accounting for the seismic effects. In fact, for plants which have not historically addressed seismic effects on rod drop time in their accident analyses, the NRC has accepted continued surveillance testing to the safety analysis value with no corrections for seismic effects. Consequently, the Limiting Condition for Operation and Surveillance Requirement stated in the current North Anna Technical Specifications for control rod drop time remains adequate and appropriate.
- The safety analysis assumption of a seismically adjusted drop time of < 2.7 seconds is preserved. The important parameter from an accident analysis standpoint is the aggregate RCCA reactivity versus time, not individual drop times, since all Virginia Power accident analyses are based on point kinetics methods. The only RCCA's which might not meet the 2.7 second seismically adjusted time on an individual basis under the new criteria are a fraction of the 8 Control A-Bank rods, which are low worth rods on the periphery of the core. Even these rods will meet the 2.7 second seismically adjusted time on a group averaged basis.
    - Since all 40 non- – Control A RCCA's must meet the 2.7 second limit on an individual basis, the aggregate or average time is always expected to be well within the 2.7 seconds. The data of Figures 3 and 4 confirm this. This margin would offset any credible deviations in RCCA drop time in Group A, since the interior rods are worth so much more.
    - Even if individual Group A rods exceed the 2.7 seconds, the group averaging constraint ensures that the net effect of group A insertion is preserved. RCCA's with longer drop times will be offset by the effects of RCCA's with shorter drop times.
    - The 2.25 second limit on individual Control Bank A RCCA's ensures that the ability of individual rods to insert, even with a seismic event, is not suspect, as

shown by RDROP analysis Case D above, and limits the allowed variability in drop times which could be realized while still meeting the 2.03 second Bank-Average limit. Therefore operability of all RCCA's is ensured.

- The aggregate reactivity effect of all RCCA's will clearly remain within the safety analysis assumption.
- As additional conservatism, in performing Reload Safety Analysis Checklist (RSAC) trip reactivity calculations, either 1) no credit will be taken for the reactivity effects of Control Bank A RCCA's or 2) a conservatively calculated trip reactivity curve associated with delayed insertion of Control Bank A will be used. It is anticipated that Option 1) would normally be used because the contribution of Control Bank A to total trip reactivity is typically well within the available margin to the safety analysis assumption.
- The Westinghouse calculations are designed to conservatively maximize the difference between the measured and worst-case, seismically adjusted drop times by including allowances for:
- An increase from best estimate to mechanical design (i.e. maximum) RCS flow rate

- An increase from best estimate to maximum core bypass flow fraction (i.e. maximum flow up RCCA guide thimbles.
  - No credit will be taken for drop time averaging for the 40 interior RCCA' s. Review of Figures 3 and 4 shows that at present the RCCA drop times for interior RCCA's (i.e. all but Control-A) are well within the proposed 2.03 second criterion. In fact, for the most recent tests, only one of the 96 RCCA's in the two units fails to meet the 2.03 second criterion (Unit 1, Location B-6, at 2.06 seconds).
  - The current conservative reload methodology of axially skewing the power to the bottom of the core for trip reactivity shape calculations will be retained.
  - In addition to the conservative approach of no credit for Control-A RCCA's in the reload trip reactivity calculations, the most reactive RCCA will be assumed to remain withdrawn, consistent with current practice.

4.0 Unreviewed Safety Question Determination

No licensing amendment or unreviewed safety question is involved.

- The proposed changes to the RCCA drop time surveillance limits will serve to ensure that the reactor trip reactivity insertion characteristics modeled in the safety analyses remain bounding, even with the unlikely occurrence of a concurrent seismic event. No system, structure or component or method of operation is being changed. No new or unique accident initiators or precursors are being introduced. All of the assumptions, bases and results of the UFSAR Chapter 15 accident analyses remain unchanged. Therefore there is no increase in the probability of occurrence of any accident.
- All of the assumptions, bases and results of the UFSAR Chapter 15 accident analyses remain unchanged. Therefore there is no increase in consequences for any accident.
- The proposed changes to the RCCA drop time surveillance limits will serve to ensure that the reactor trip reactivity insertion characteristics modeled in the safety analyses remain bounding, even with the unlikely occurrence of a concurrent seismic event. No new type of accident is introduced by this change.
- The effectiveness of the surveillance testing program to confirm insertability of all RCCA's is not being compromised. The single failure of an RCCA to insert following trip continues to be modeled in all of the accident analyses. As an additional conservatism, no credit for the effects of control bank A following trip will be taken for future reload analyses. Therefore, neither the probability of occurrence nor the consequences of a malfunction of equipment important to safety are increased.
- All of the assumptions, bases and results of the UFSAR Chapter 15 accident analyses remain unchanged. Therefore no margin of safety is affected by this change.

99-SE-OT-41

Description
Technical Specification Interpretation for T.S. 4.7.8.1.b.1, b.3, d.1, e, and f.
The TSI defines what constitutes "Safeguards Ventilation System Flow Rate" as referenced by the above Technical Specifications

Summary
Technical Specifications do not adequately explain what constitutes satisfying the TS surveillance requirements for Safeguards Ventilation flow rate requirements. Therefore, a Technical Specification Interpretation is being prepared per VPAP-2806.

This TSI seeks to provide guidance for the surveillance requirements set forth in T.S. 4.7.8.1. The proposed interpretation will ensure that SAVS (Safeguards Area Ventilation System) operation will remain consistent with UFSAR and design assumptions. No additional requirements are created as a result of this TSI nor is a TS change required unless it is desired to further clarify the surveillance requirement by enhancing the TS bases section T.S. 4.7.8.1.

The operation of the safeguards ventilation system will continue to be within the parameters defined in the UFSAR. Operation of the system will not be altered by this TSI. Since system operation remains as assumed in the design basis and UFSAR, the probability and consequences of all accidents and malfunctions of equipment remain unchanged. Similarly, no additional accidents or malfunctions are created.

This activity does not constitute an unreviewed safety question.

99-SE-OT-42

Description

Temporary Shielding Requests 99-TSR-016 and 99-TSR-025

It is proposed to install temporary lead blanket shielding to operable NAPS U2 RC piping during Mode 6 with fuel in the reactor vessel. 99-TSR-016 will install up to 375 pounds of shielding on 8" RC bypass piping near the cold leg stop valve in each RCP cubicle. 99-TSR-025 will install lead blankets on the pressurizer surge line. 99-TSR-025 shielding will be removed prior to entering Mode 5 from Mode 6. 99-TSR-016 shielding will remain in place, with the affected bypass lines drained, after the Unit enters Mode 5 from Mode 6. 99-TSR-016 shielding will be removed prior to fill of the affected loops.

Summary

Temporary Shielding Requests 99-TSR-016 and 99-TSR-025 will install temporary lead blanket shielding to operable NAPS U2 RC piping during Mode 6 with fuel in the reactor vessel. 99-TSR-016 will install up to 375 pounds of shielding on 8" RC bypass piping near the cold leg stop valve in each RCP cubicle. 99-TSR-025 will install lead blankets on the pressurizer surge line. 99-TSR-025 shielding will be removed prior to entering Mode 5 from Mode 6. 99-TSR-016 shielding will remain in place, with the affected bypass lines drained, after the Unit enters Mode 5 from Mode 6. 99-TSR-016 shielding will be removed prior to fill of the affected loops. The shielding will be installed and removed under the VPAP-2105 Temporary Shielding Program. The proposed activities will not:

- increase the probability of occurrence for a seismic event,
- increase the consequences of a seismic event,
- create the possibility for an accident of a different type

No postulated equipment failures could be identified which are associated with temporary radiation shielding applied to RC piping.

There are no applicable Technical Specification basis descriptions; therefore, the margin of safety will not be affected by the proposed activities. The proposed activities will be conducted in compliance with VPAP-2105 in order to satisfy Technical Specification 6.11. No changes to the Operating License or Technical Specification are required.

Applying lead blanket shielding to operable RC piping will have no affect on any station operations following a fire.

There are no discernable environmental concerns associated with the proposed activities.

CONCLUSION

Installing temporary lead shielding as proposed does not constitute an unreviewed safety question because:

- The probability of experiencing a design basis seismic event is unrelated to the act of installing temporary lead shielding.
- Since the affected piping has been seismically analyzed for the applied shielding load and the response was found to be within acceptable limits, there is no identified increase in the consequences related to a design basis seismic event.
- Seismic concerns and RC pipe temperature limits (for compatibility with lead blankets) are the main issues associated with the proposed activities. No other concerns were identified and an accident of a different type could not be postulated.

Technical Specification margins of safety are not reduced. Seismic analysis has shown that the level of stress with shielding in place is within the design limits during Mode 6 when the shielding will be installed. No piping analysis is required for 99-TSR-016 (RC bypass piping) once the affected lines are drained.

99-SE-OT-43

Description

North Anna UFSAR change request # FN 99-020

UFSAR change request FN 99-020 contains a list of many changes, some of which are editorial in nature, which need to be corrected or enhanced in the UFSAR sections that discuss North Anna's Containment Systems. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's Containment Systems.

Summary

The following editorial/clarification changes are proposed (identified by change item subnumber). These do not affect any containment systems component or any other SSC operation or performance. These changes do not result in an unreviewed safety question. They are editorial changes only and therefore, do not impact the margin of safety or change the consequences of an accident as described in the UFSAR.

Change Item Sub # 1

Clarify Sections 3.1.46.2 and 3.1.47.2 to indicate that testing for leak tightness of containment penetrations is performed for all containment isolation valves, except those discussed in Section 6.2.1.4. Section 3.1.46.2 provides a discussion describing how the North Anna containment design meets the requirements of GDC 53, "Provisions for Containment Testing and Inspection." Section 3.1.47.2 provides a discussion of to how the North Anna containment isolation system design meets the requirements of GDC 54, Piping Systems Penetrating Containment." Currently, statements in both these sections indicate that "all" containment penetrations are tested for leak tightness. These statements are misleading because Section 6.2.1.4 discusses the performance-based testing program which includes Type A, Type B, and Type C tests that are performed as required by 10 CFR 50, Appendix J, Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors, Option B, as modified by approved exemptions, and in accordance with the guidelines contained in Regulatory Guide 1.163, Performance-Based Containment Leak-Test Program, dated September 1995. The proposed change will refer the reader to Section 6.2.1.4 to identify the exceptions to leak tightness testing. The proposed revision resolves a deviation between current operating practice and the description of the operation presented in different sections of the UFSAR. This change does not modify the intent of describing leak tightness testing presented in the original UFSAR statement and maintains consistency within different sections of the UFSAR.

Change Item Sub # 2

Revise Section 3.1.48.2 to indicate that the valves used for containment isolation are inspected and tested in accordance with the Technical Specifications. Section 3.1.48.2 provides a discussion as to how the North Anna containment penetration design meets the requirements of GDC 55, "Reactor Coolant Pressure Boundary Penetrating Containment." The statement being revised states, "All valves used for containment isolation may be readily inspected at any time." This is incorrect for those valves located inside containment. Technical Specification 4.6.1.1 ensures containment integrity is maintained by verifying that all penetrations, except those located inside containment that are locked sealed or otherwise sealed in the closed position, are closed. This Technical Specification, allowing the inside containment isolations to be exempt from inspection every 31 days, has been part of the original Technical Specifications for NPF-4 that were issued on 11/26/77. The proposed revision resolves a deviation between current operating practice and the description of the operation presented in the UFSAR. The revision does not remove discussion of containment isolation valve inspection, but presents the current practice of ensuring the containment isolation valves outside of containment are verified closed every 31 days. Therefore, this change does not modify the intent of describing the containment isolation valve inspections presented in the original UFSAR statement.

Change Item Sub # 3

Revise Section 3.11.2.3 to accurately describe the location and environmental testing requirements for the Containment Vacuum and Leakage Monitoring System components. Section 3.11.2 indicates Stone and

Webster supplied equipment and states that equipment which must perform an engineered safety feature function or a safety-related function are designed to withstand the environmental conditions during the life of the plant and during the accident environment. Subsequently, Section 3.11.2.3 discusses the environmental design requirements for the containment vacuum and leakage monitoring system components and indicates that there are no components within these systems that are located within containment. This is incorrect since containment vacuum system check valves, 1/2-CV-8, 1/2-CV-1, 1-CV-14, and 2-CV-15, are located inside containment. These check valves are not containment isolation valves. Consequently, Section 3.11.2.3 will be modified to identify that there are some containment vacuum system check valves located inside containment, but they are not required for containment isolation, and therefore, are not required to withstand an accident environment. The proposed revision resolves a deviation between current installed equipment and the description of the equipment presented in the UFSAR. The revision does not remove discussion of the environmental design of mechanical and electrical equipment presented in Section 3.11, but accurately describes why the Containment Vacuum and Leakage Monitoring System components are acceptable for use from an environmental qualification aspect.

Change Item Sub # 7
Change the general description of the Containment Isolation System in Section 6.1 to indicate that not all containment penetrations have containment isolation valves both inside and outside the containment. Section 6.1 describes the engineered safety features designed to provide emergency coolant to ensure the structural integrity of the core and to maintain the integrity of the containment structure during accident conditions, thereby preventing or minimizing the release of fission products to the environment. The Containment Isolation System is described in Section 6.1 as one of the separate and independent engineered safety features provided to satisfy the indicated functions. This general description of the Containment Isolation System states that containment isolation valves are provided inside and outside all the containment piping penetrations. As stated in Section 6.2.4.2, "General Design Criteria 55, 56, and 57 had not been promulgated when four penetrations, which use check valves outside the containment as isolation valves, were designed. As explained in Section 6.2.4.2 and Table 6.2-37, these penetrations constitute exceptions taken to General Design Criteria 55, 56, and 57. This situation occurs only where there is a sealed Seismic Class I system inside the containment serving as a second isolation barrier. These penetrations are considered to meet the requirements of General Design Criterion 53 (July 10, 1967), in effect at the time of design." Although the general discussion of the Containment Isolation System in Section 6.1 states that Section 6.2.4 describes the containment isolation system; the statement about isolation valves being located inside and outside all containment piping penetrations is confusing and will be clarified to eliminate this confusion and maintain consistency within the two sections of the UFSAR. The proposed clarification does not change the intent of the original statement, impact any design basis information, or change a commitment.

Change Item Sub # 13
Add Reference Drawing 10 to the statement in Section 6.2.1.3.2.1 that discusses the vent areas for the steam generator cubicles. Section 6.2.1.3.2.1 provides a discussion of the vent areas in the containment that are covered by floor grating or similar obstructions. The vent areas from the steam generator cubicles to the lower level that are obstructed by grating and blowout diaphragms are provided in this list and direct the reader to Reference Drawing 9 (11715-FM-1F). Reference Drawing 10 (11715-FM-1G) also shows these grating and blowout diaphragms and will be added to the indicated statement in Section 6.2.1.3.2.1. The proposed additional reference does not change the intent of the original statement, impact any design basis information, or change a commitment.

Change Item Sub # 16
Clarify the discussion of the expansion and contraction losses associated with flow through wire grid door gratings and screens in Sections 6.2.1.3.2.4 and 6.2.1.3.2.5. The discussion on expansion and contraction losses associated with flow through wire grid door gratings and screens in Sections 6.2.1.3.2.4 and 6.2.1.3.2.5 were added in response to an NRC request for additional information during initial licensing (Comment S6.117). Specifically, the NRC requested clarification on the procedures used to determine the contraction and expansion losses associated with flow through gratings. The response to comment S6.117

provided the requested information by stating how the losses were calculated and indicated that the reference, Idel'chik, I.E., Handbook of Hydraulic Resistance, Coefficients of Local Resistance and of Friction AEC-TR-6630, 1966, was utilized to obtain the results. Additionally, the response included some of the specific formulas from the Idel'chik Handbook.

The detailed formulas currently in the UFSAR which were taken from Idel'chik's Handbook will be deleted, but the reference to the specific formulas in the handbook will be retained. This information was provided in the response to the request for additional information during initial licensing, but should not have been incorporated into the UFSAR since it was extraneous detail above and beyond that necessary to answer the NRC's question. In addition, this type of detailed information is not required, by the guidance provided in the AEC 1972 Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants, to be provided in the UFSAR. The proposed changes accurately describe how the expansion and contraction losses are calculated and do not eliminate the information requested by the NRC. No design basis information is impacted, nor is there a change to a commitment.

Change Item Sub # 17
Clarify Section 6.2.1.3.2.5 to indicate that the discussion about the steam generator cubicle vent openings is for the 14-node steam generator subcompartment analysis. The statement being revised in Section 6.2.1.3.2.5 states that for conservatism, credit is not taken for the four small vent openings per steam generator cubicle. The paragraph above this statement refers the reader to Figure 6.2-28, which is very similar to Figure 1 in Calculation 11715-ES-183, Revision 1, "Differential Pressure Transients in Steam Generator Cubicle for a New Design." Calculation 11715-ES-183, Revision 1, developed the 14-node steam generator subcompartment analysis model. The 15 node steam generator subcompartment analyses for Units 1 and 2, Calculations 11715-ES-204 Revision 1, and 11715-ES-209, Revision 1, respectively, do take credit for the 4 vent areas. The proposed change will clarify that the statement about no credit being taken for the four small vent openings is for the 14-node steam generator subcompartment analysis. This change does not change the intent of the original statement; it only helps the reader to understand that the discussion is for the 14-node steam generator model. There is no change to the design basis of the steam generator cubicle or associated subcompartment analysis and no commitments are changed.

Change Item Sub # 28
Correct the reference number for NUREG/CR-2791 in Section 6.2.2.2. Section 6.2.2.2 states that insulation debris is classified in categories or damage states according to NUREG/CR-2791and refers the reader to Reference 29. Reference 29 is not the reference for NUREG/CR-2791; reference 43 is the reference for NUREG/CR-2791. This statement will be revised to reflect the correct reference number. The proposed correction does not change the intent of the original statement, impact any design basis information, or change a commitment.

Change Item Sub # 32
Delete the pointer to Section 6.2.2.1 in the discussion of the quench spray thermal equilibrium in Section 6.2.2.3.3. Section 6.2.2.3.3, Containment Depressurization Time, states, "As discussed in Section 6.2.2.1, it is conservatively assumed that the quench spray reaches 90% of thermal equilibrium with the containment atmosphere." This statement is incorrect because Section 6.2.2.1 does not, and never has, discussed quench spray thermal equilibrium. Therefore, the reference to Section 6.2.2.1 will be deleted from the discussion of quench spray thermal equilibrium. The proposed correction does not change the intent of the original statement, impact any design basis information, or change a commitment.

Change Item Sub # 33
Identify a paragraph in Section 6.2.4.4 as HISTORICAL, because the paragraph discusses the similarity of the design for the containment isolation valves used at North Anna with the valves used at Surry 1 and 2 and Beaver Valley 1 power stations. Also, change the verb tense to the past. Section 6.2.4.4 discussed the tests and inspections associated with the containment isolation valves and states, "Valves of similar design are used at Surry 1 and 2 and Beaver Valley 1 power stations." The intent of this statement was to identify

this design similarity to the NRC for the purposes of obtaining the initial operating license. The statement is currently true; however, North Anna is not informed of design changes at Beaver Valley 1, nor do the need to be. This statement will be identified as historical and the verb tense changed to reflect the past tense.

Change Item Sub # 34

Change the discussion of the steam ejector in Section 6.2.6.2 to reflect the design basis of the steam ejector without providing specific design information. The design basis of the steam ejector is to remove air from the containment to create initial vacuum prior to unit operation. Specifically, as indicated in Calculation 11715-12N, "Containment Vacuum Ejector Capacity," and Specification NAS-162, "Containment Vacuum Ejector," the steam ejector is designed to reduce the containment pressure from atmospheric pressure to 9.5 psia in about 4 hr. Currently, the UFSAR states the design basis of the steam ejector, but also contains incorrect design information. The design information is not required to be included in the UFSAR in order to accurately describe the design basis. Therefore, the erroneous design information will be removed without changing the description of the steam ejector design basis. This proposed change does not alter the design basis of the steam ejector or change a commitment.

Change Item Sub # 35

Delete the statement in Section 6.2.6.3 that refers the reader to Section 6.2.5.3 for a discussion of the radiological consequences of the containment atmosphere cleanup system starting on the sixth day following a loss-of-coolant accident (LOCA) since this discussion is not located in Section 6.2.5.3 or any other section in the UFSAR. Section 6.2.6.3 provides a discussion of the design evaluation of the Containment Vacuum System. Section 6.2.6.3 indicates that the radiological consequences of the containment atmosphere cleanup system starting on the sixth day following a loss-of-coolant accident (LOCA) are discussed in Section 6.2.5.3. This was discussion was contained in Section 6.2.5.3 until UFSAR Change Package FN 96-008 was implemented. FN 97-008 and its supporting safety evaluation, 97-SE-OT-04, replaced the radiological consequence discussion in Section 6.2.5.3 but did not remove the statement in Section 6.2.6.3 pointing to that discussion. Therefore, FN 99-020 will delete the statement refers the reader to Section 6.2.5.3 for a discussion of the radiological consequences of the containment atmosphere cleanup system starting on the sixth day following a loss-of-coolant accident (LOCA). This proposed change is supported by FN 97-008 and 97-SE-OT-04 and therefore, is acceptable.

Change Item Sub # 41

Revise the reference drawing list in Section 6.2 to include Unit 2 drawings. A list of reference drawings is provided at the end of Section 6.2. Currently, this list contains the Unit 1 drawings that are referenced in Section 6.2. Some of the associated Unit 2 drawings are also listed. This proposed change will update the list of Section 6.2 reference drawings to include both the Unit 1 and Unit 2 drawings.

Summary:

The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, or a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or

mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.
Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regards to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed (identified by change item subnumber). The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these items is discussed

Change Item Sub # 4
Delete the Containment Recirculation System Coolers from Section 5.2.4, "Reactor Coolant Pressure Boundary Leakage Detection Systems," since they are no longer used to detect RCPB leakage. Section 5.2.4.1.1 states that there are six means for detecting and indicating leakage from the reactor coolant pressure boundary (RCPB) to the containment atmosphere. Also, for each of these six methods, it is stated that indication and alarms are provided in the control room. The containment recirculation system cooler heat load is listed as one of the means for detecting RCPB leakage; however, this is not true because the Containment Chilled / Chilled Component Cooling Water System was changed via E&DCR P-2493. As part of the E&DCR change, the Control Room annunciators associated with monitoring the cooler heat load were removed.

Existing procedures, including 1/2-AP-16, "Increasing Primary Plant Leakage," do not take credit for leakage detection via the Containment Recirculation System Coolers. Procedures 1/2-AP-16 state that there are 9 different symptoms that could lead the Operator into the AP. None of those nine symptoms are related to containment recirculation system coolers. Annunciators related to high temperatures in the chilled water to recirc coolers do not address primary leakage as a possible cause.

Based on the above, the UFSAR will be revised to eliminate the Containment Recirculation System Coolers from the list of methods used for detecting and indicating leakage from the reactor coolant pressure boundary (RCPB) to the containment atmosphere. This is acceptable because in NUREG-0053, Section 5.2.9, "Detection of Leakage Through Reactor Coolant Pressure Boundary," the NRC stated that the major components used to detect RCPB leakage are the containment atmosphere particulate and gaseous radioactivity monitors and level indicators on the containment sump, and these RCPB leakage detection methods are not altered as a result of this proposed change. Also, there are no commitment changes as a result of this proposed change. This proposed change accurately reflects the current plant operation as a result of an evaluated and approved modification. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 5
Correct the detailed description of the Containment Structure Leakage Monitoring System instrumentation that is used to detect leakage from the Reactor Coolant Pressure Boundary (RCPB) as described in Section 5.2.4.1.1. Section 5.2.4.1.1 states that the Containment Structure Leakage Monitoring System (LMS) is used for detecting and indicating leakage from the reactor coolant pressure boundary (RCPB) and that the LMS instruments used for detecting RCPB leakage are comprised of absolute and differential manometers, temperature detectors, and humidity sensing devices. This is incorrect for two reasons: 1) the absolute and differential manometers were removed via EWR 83-079, and 2) the humidity sensors are not used in the determination of RCPB leakage. According to AP-16, two Leakage Monitoring System related methods

of detecting RCS leakage are increasing containment pressure and increasing containment temperature; not containment humidity. Although the manometers were removed, and the humidity sensors are not used for RCPB leak detection, there are other LMS pressure instruments that are used to determine increases in containment pressure which could indicate a RCPB leak.

The discussion of the LMS instrumentation used to detect RCPB leakage will be updated to reflect the current plant configuration and the 1.055 psi uncertainty of the installed LMS pressure instruments and the 0.788 uncertainty of the temperature instruments as documented in EE-0101, Revision 2, "Setpoint Bases Document Analytical Limits, Setpoints and Calculations for Technical Specification Instrumentation at North Anna and Surry Power Stations." These uncertainties are encompassed in the values used in the accident analyses. This proposed change is acceptable because in NUREG-0053, Section 5.2.9, "Detection of Leakage Through Reactor Coolant Pressure Boundary," the NRC stated that the major components used to detect RCPB leakage are the containment atmosphere particulate and gaseous radioactivity monitors and level indicators on the containment sump, and these RCPB leakage detection methods are not altered as a result of this proposed change.

The proposed UFSAR change will not change the intent of the original discussion and the design basis of the LMS and RCS are unchanged. Since the proposed changes accurately reflect the current installed leakage monitoring system equipment, as evaluated and approved in EWR 83-079, and do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 6
Revise Section 5.2.4.1 to indicate that the pressurizer spray and spray bypass system valves are not diaphragm type valves. The statement being revised in Section 5.2.4, "Reactor Coolant Pressure Boundary Leakage Detection Systems," indicates that the valves utilized in the pressurizer spray and spray bypass system at North Anna Power Station are of the diaphragm type so as to eliminate the large valve leakages experienced at the R. E. Ginna plant. This is an incorrect statement because a review of the Vendor Technical Manuals for the pressurizer spray and spray bypass system valves indicates that while the pressurizer spray valve bypass valves are weir type diaphragm valves, the pressurizer spray control valves are Fisher Type SS-84 Control Valves which have rotary vee ball trim. The use of the Fisher rotary vee ball control valve for the pressurizer spray valve, rather than a diaphragm valve as used at Ginna or a standard globe type control valve, significantly reduces the possibility for valve stem leakage since the stem rotates rather than moves axially through the packing. Also, these valves are equipped with valve stem leakoff connections, which are piped to the Primary Drain Transfer Tanks. Section 5.2.4.1 will be revised to accurately describe the valves installed at North Anna Power Station in the pressurizer spray and spray bypass system.

The discussion as to the types of valves used at North Anna to eliminate the large valve stem leakage experienced at the R. E. Ginna plant is not eliminated by this change; it is only corrected to accurately describe the installed valves. The proposed clarification does not change the intent of the original statement, impact any design basis information, or change a commitment. The proposed change will accurately reflect the current design of the installed pressurizer spray and spray bypass system valves. The design of these valves reduces the possibility for leakage, and these valves are provided with the additional leakage design provision of valve stem leakoff connections which are piped to the Primary Drain Transfer Tanks. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the valves in the UFSAR and does not involve a change to the manner in which the valves operate, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 8
Delete the statements in Sections 6.2.1.1.1.2 and 6.2.1.3.1.1 that direct the reader to Figures 6.2-8 and 6.2-9 because FN 97-024 previously removed these figures. The LOCTIC Computer Code is discussed in Section 6.2.1.1.1.2 and the Loss-of-Coolant Accident is discussed in Section 6.2.1.3.1.1. Calculation 01040.7910-US(B)-278, Evaluation of Containment LOCA Analysis Results for Reduced Heat Sinks and Increased Casing Cooling Water Temperature, is the analysis of record for the containment response following a LOCA. This calculation was prepared and supported by Safety Evaluation 97-SE-OT-029. Safety Evaluation 97-SE-OT-029 also supported UFSAR Change Package FN 97-024 that was prepared to update the UFSAR to reflect the new analysis. As part of FN 97-024, Figures 6.2-14 and 6.2-15 (now indicated as figures 6.2-8 and 6.2-9 in the current revision of the UFSAR due to renumbering) were deleted. However, although FN 97-024 deleted the referenced figures in Sections 6.2.1.1.1.2 and 6.2.1.3.1.1, it did not delete the associated text referring to these figures.

The proposed change deletes the reference to Figures 6.2-8 and 6.2-9 since these figures no longer exist. This is acceptable because no design basis information is impacted and there are no commitment changes. In addition, the discussion of the Loss-of-Coolant Accident presented in Section 6.2.1.3.1.1 represents the current analysis of record for containment response following a LOCA and the results of the containment analysis are unchanged as a result of this activity. This change revises the UFSAR to include changes encompasses by UFSAR Change Package FN 97-024. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 9
Revise the statement about the location of the staging basket during normal plant operation, described in Section 6.2.1.2.6, to indicate that the staging basket is either removed from containment or stored on a platform during normal plant operation. UFSAR Section 6.2.1.2.6, "Personnel Staging Basket," currently indicates that the staging basket is stored on a platform on the polar crane during normal plant operation and is secured to prevent movement during a seismic event. This statement is correct, but incomplete because 1/2-OP-1B, "Containment Checklist," requires verification that the personnel staging basket is secured to the catwalk on the polar crane or is removed from containment. The UFSAR will be revised to indicate the requirements in 1/2-OP-1B. Since 1/2-OP-1B continues to require securing of the staging basket, it will be refrained from movement during a seismic event.

The proposed clarification reflects current plant operation and does not change the intent of the original statement, impact any design basis information, or change a commitment. There is no impact on the performance of safety-related and/or non-safety-related equipment located near the Personnel Staging Basket since the basket continues to be refrained from movement during a seismic event whether it is, or is not, removed from the containment. Therefore, the proposed change does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. Removing the basket from containment does not create the possibility for a new or different kind of accident or malfunction of equipment important to safety. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub # 10
Change Section 6.2.1.2.9 to indicate that the primary drain transfer tank coolers are Seismic Class I equipment that are located near the Iodine Filtration Fans. In addition, indicate that the Seismic Class I equipment is located at least 10 feet from the fans. Section 6.2.1.2.9, "Iodine Filtration Fans," lists Seismic Class I equipment located near the fans. A review of DMIS for the primary drain transfer tank (PDTT) coolers indicates that these coolers (1/2-DG-E-1) are Seismic Class I. Equipment location Drawings 11715/12050-FM-1E show that the PDTT coolers are located close to the iodine filtration fans;

consequently, Section 6.2.1.2.9 will be updated to include the PDTT coolers in the list of Seismic Class I equipment located close to the iodine filtration fans.

Change Item Sub # 10 (continued)
The UFSAR currently states that Seismic Class I equipment near the fans is located at least 12 feet from the fans and therefore, the equipment would not be damaged if the fans failed during a seismic event. The PDTT coolers are located less than 12 feet from the fans, but greater than 10 feet; therefore, the UFSAR will be changed to indicate that the Seismic Class I equipment is located 10 feet from the fans instead of the 12 feet as currently indicated. This change is acceptable because the adequacy of this 10 foot distance has been evaluated in the May 1997 Report on Verification of Seismic Adequacy of Mechanical and Electrical Equipment that was prepared in response to USNRC Generic Letter 87-02, Unresolved Safety Issue (USI) A-46. Specifically, in this report, the PDTT coolers were determined to be free of adverse seismic interaction effects. The determination of this adequacy was performed in accordance with Revision 2 of the Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment, dated 2/14/92.

This proposed change is acceptable because it maintains an accurate list of Seismic Class I equipment located near the Iodine Filtration Fans. The design basis of the Iodine Filtration Fans is unchanged as a result of this proposed change and no commitments are affected. The proposed revision does not remove the discussion of the design data comparison, but states that the PDTT coolers are located close to the iodine filtration fans and would not be damaged if the fans failed during a seismic event. Since the proposed change does not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Since the proposed change does not alter the operation or performance of any containment systems components or any other SSC's important to safety, there is no possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report being created. No analyses or setpoints are affected by this change; subsequently the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 11
Change the indicated elevation, in Section 6.2.1.2.13, at which the containment annulus hoist is mounted on a monorail from "232 ft. 4 in." to "323 ft. 4 in." Section 6.2.1.2.13, Containment Annulus Hoist, was added to the UFSAR in Revision 0. The description of the containment annulus hoist given in Revision 0 stated the incorrect elevation of 232 ft. 4 in., but referred the reader to Figure 1.2-7 (11715-FM-1E-11). Figure 1.2-7 is no longer in the UFSAR, but Drawing 11715-FM-1E is still a controlled drawing and continues to show that the monorail on which the containment annulus hoist is mounted is located at elevation 323 ft. 4 in. There appears to have been a transposition error in this number since the original issue of Revision 0 to the UFSAR.

This proposed change will correct the elevation while maintaining the intent of the original discussion. There is no change to the design basis of the containment annulus hoist or any commitments; therefore, this change is acceptable. Since this change reflects the current and originally approved design, there is no increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub # 12
Correct the free volume of the upper reactor cavity in Section 6.2.1.3.2.1. Also, delete the extraneous and incorrect statements related to the reactor cavity cylinder dimensions provided in Section 6.2.1.3.2.1. Section 6.2.1.3.2.1, "Reactor Cavity," was added in response to a NRC request for additional information during initial licensing (Comment S6.43). Specifically, for item "d" of Comment S6.43, the NRC requested

that information relating to the free volume of the upper reactor cavity, lower reactor cavity, and the annulus between the reactor pressure vessel and the reactor cavity wall, and the vent areas between these volumes be provided. The response to comment S6.43 provided the requested information and additional details on the cylinder dimensions for various portions of the reactor cavity

The upper reactor cavity free volume of 1542 Cu Ft provided in the response to comment S6.43 is incorrect. 1542 Cu Ft is the volume between the reactor vessel and the reactor vessel cavity above Elevation 252'-9 15/16", not the full volume of the reactor cavity above Elevation 252'-9 15/16". Calculation 11715-ES-126, Rev. 0, "Reactor Cavity Analysis Annulus Lower Reactor Cavity and Incore Instrumentation Study", dated 10/2/75, is the latest calculation for the Upper Cavity Analysis and calculates the upper reactor cavity volume as 1537.7 Cu Ft. This value was calculated and used as an input to the THREED analysis for determining the pressure transient in each portion of the reactor cavity (subcompartments). Correcting the upper reactor cavity free volume is acceptable because it accurately reflects the current subcompartment analyses.

In addition, NUREG-0053, Supplement 1, dated 6/30/78, indicates that the designs of the containment steam generator subcompartment and lower reactor cavity are acceptable to the NRC.

The extra detailed information on the reactor cavity cylinder dimensions provided in Section 6.2.1.3.2.1 will be deleted. This information was provided in the response to the request for additional information during initial licensing, but should not have been incorporated into the UFSAR since it was extraneous detail above and beyond that necessary to answer the NCR's question. In addition, this type of detailed information is not required, by the guidance provided in the AEC 1972 Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants, to be provided in the UFSAR.

Since the proposed change accurately reflects the current reactor cavity subcompartment analyses calculations and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the free volume of the upper reactor cavity, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 14

Revise the discussion of blowout panels used in the steam generator and pressurizer cubicle analysis in Section 6.2.1.3.2.5 to indicate that more than two blowout panels are considered as vent areas in each steam generator cubicle. Delete the statements that 1) indicate the blowout diaphragm between elevation 236 ft. 8 in. and 239 ft. and is considered in the steam generator cubicle analysis, and 2) blowout diaphragm will blow out at 5 psid since the analysis takes no credit for action of a blowout diaphragm. Also, revise Figures 6.2-27, 6.2-28, Table 6.2-27, and Section 6.2.1.3.2.1 to reflect the as-built configuration of the steam generator subcompartments which includes a vent seal instead of a blowout diaphragm. The discussion in Section 6.2.1.3.2.5 that is being revised presents a summary of items that were considered in the steam generator subcompartment analyses. Portions of this discussion are incorrect. Specifically, Calculation 11715-ES-184, Revision 1 dated 11/23/77, "Differential Pressure Transients Across Ventilation Seal, Ventilation Seal and I Beam Support Structures SG Compartment Floor or Wall," indicates that more than two blowout panels are considered as vent areas after the blowout differential pressure is achieved; not two blowout panels, as currently stated in the UFSAR.

Calculation 11715-ES-183, Rev. 1, 6/23/77, "Differential Pressure Transients in the Steam Generator Cubicles for a New Design," indicates that the blowout diaphragms between elevations 236 ft. 8 in. and 239 ft have been removed and are not considered in the steam generator cubicle analysis. Table 6.2-27 and Figures 6.2-27 and 6.2-28, which illustrate two views of the area surrounding the air duct and blowout diaphragm under consideration, also indicate that a blowout diaphragm exists. Therefore, the statement indicating that these blowout diaphragms were considered in the analysis and the reference to these diaphragms in the table and figures are incorrect and will be revised. The reference to the vent area between the air duct and the reactor cavity on Table 6.2-27 and Figures 6.2-27 and 6.2-28 will also be deleted because Calculation 11715-ES-204-1, "Differential Pressure Across Subcompartment Cubicles," also indicates that this vent area has been plugged.

The proposed change will correct the above-identified errors to reflect the current steam generator subcompartment analyses without changing the original intent of the discussion. Also, the design basis of the steam generator subcompartments is not altered and there are no commitment changes resulting from the proposed change. Since the proposed change accurately reflects the current steam generator and pressurizer cubicles subcompartment analyses calculations and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the UFSAR to reflect the subcompartment analyses calculations, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 15

Revise the description of the doors in the steam generator and pressurizer cubicles that are provided in Section 6.2.1.3.2.3, to accurately reflect the design basis of the doors without providing specific design information. The paragraph being revised in Section 6.2.1.3.2.3 provides a detailed description of the doors in the steam generator compartments and pressurizer cubicle. Specifically, the discussion includes elaborate and excessive detail that states there are six screws that fasten each blowout sheet metal panel to the frame of a locked wire grid door and then calculates the force on each screw at a differential pressure at 5 psi. The differential pressure of 5 psi at which the doors blowout is the design basis for the blowout panels. Calculations 11715-ES-184, Rev. 1, " Maximum Differential Pressure Across Ventilation Seal, Ventilation Seal and I Beam Support Structure, SG Subcompartment Floor and Wall," and 11715-ES-115, "Pressurizer cubicle Geometry & Loss of Coefficients," confirm that the blowout panels in the steam generator and pressurizer cubicle doors are assumed to blowout at 5 psi. Therefore, the statement in the discussion about the panels being blown out at 5 psi is correct and will be retained to reflect the design basis of the doors.

Deviation Report N-96-0258 identified discrepancies between the actual installed condition of the steam generator and pressurizer cubicle doors blowout sheet metal panels and the description of these panels in Section 6.2.1.3.2.3 of the UFSAR. Engineering Transmittal ET CE 96-069, Rev. 1, "Repair of S/G and Pressurizer Cubicle Door Blowout Panels," confirms that all the doors identified in the DR had been returned to the original configuration. The ET also included information that the pressurizer wire grid door had 10 screws securing the panel to the door. Therefore, the discussion in the UFSAR about the six screws is only correct for the steam generator door blowout panels, not the pressurizer cubicle door blowout panels. Since the discussion about the six screws and the calculation of the subcomponent (screw) stresses is extraneous design information that does not affect the design basis of the steam generator and pressurizer cubicle doors blowout panels, it will be removed from the discussion.

The proposed change does not change the intent of the original discussion. The design basis differential pressure at which the blowout panels in the steam generator and pressurizer cubicle doors will be released is unchanged and preserved within the proposed change.

Since the proposed change accurately reflects the current design of the steam generator and pressurizer cubicles doors as reflected in the subcompartment analyses calculations and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the UFSAR to reflect the subcompartment analyses calculations, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 18

Clarify Section 6.2.1.3.2.5, to indicate that the reactor flange-mounted ventilation seal is comprised of 48 panels and that these panels are designed to fail at 18 psid with a hoop tension of 400 lb/in. Also, change the total vent area provided by the blowout panels from "144.7 ft2" to "approximately 147 ft2." A portion of section 6.2.1.3.2.5 discusses the reactor flange-mounted ventilation seal and states that there are 24 reactor-flange-mounted ventilation seals. Other statements in this same section are in the singular tense, inferring that there is only one seal, and further into the discussion of the ventilation seals, panels are specifically discussed. This discussion is very confusing and may lead to misinterpretation. These statements will be revised to accurately reflect that there is one reactor flange-mounted ventilation seal that is comprised of 48 panels, as verified by Drawing 11715-FV-81A-2 and Calculation 11715-NMB-198-HDB-0, Reactor Cavity Ventilation Seal. Section 6.2.1.3.2.5 also indicates that the blowout pressure to which the seals are designed is 10 psid at a hoop tension of 200 lb/in and the total vent area thereby provided is 144.7 ft2; however, Calculation 11715-NMB-198-HDB-0 indicates that the blowout pressure is 18 psid at a hoop tension of 400 lb/in and the vent area provided is approximately 147 ft2. An earlier design, also discussed in Calculation 11715-NMB-198-HDB-0, utilized a hoop tension of 200 lb/in that resulted in a burst pressure of 10 psid. The statements about the hoop tension, burst pressure, and vent areas reflect the earlier design and will be corrected to accurately reflect the current approved Reactor Cavity Ventilation Seal calculation.

The proposed corrections do not change the intent of the original statement, impact any design basis information, or change a commitment. Since the proposed change does not change the design or operation of the reactor flange-mounted ventilation seal, involve physical changes to the facility, or require procedural changes, and reflects the results of the design calculation used as an input to subcompartment analyses, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the reactor flange-mounted ventilation seal in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 19

Change the peak differential pressure for the reactor annulus and the incore instrument tunnel in Section 6.2.1.3.2 to accurately reflect the results of Calculation 11715-ES-127, Rev. 0, "Reactor Cavity Annulus - RELAP." Pages 6.2-44 and 6.2-45 of the UFSAR indicate the calculated pressures that were used to verify the structural capacities of various subcompartments. The differential pressure indicated for the reactor annulus and the incore instrument tunnel are incorrect. Calculation 11715-ES-127, Rev. 0, "Reactor Cavity Annulus - RELAP" is the calculation for the RELAP analysis of the reactor cavity annulus subcompartment pressure response. It appears that the results of this calculation were incorrectly transcribed in Section 6.2.1.3.2 of the UFSAR. This proposed change will correct the reactor annulus and the incore instrument tunnel differential pressure indicated on pages 6.2-44 and 6.2-45 to accurately reflect the results of Calculation 11715-ES-127, which presents the design basis differential pressure for the reactor annulus and the incore instrument tunnel.

This change corrects an inconsistency between controlled calculations and the results of the calculations presented in the UFSAR. The intent of the original statement is not changed and no commitments are changed. Since the proposed change accurately reflects the results of the reactor annulus and the incore instrument tunnel subcompartment analysis and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the results of the calculated peak differential pressure for the reactor annulus and the incore instrument tunnel, and does not involve physical changes to the facility, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 20
Revise the description about the potential for the reactor cavity blowout panels to block the drain in the refueling canal to exclude the specific volume of water that could be potentially trapped. The paragraph being revised discusses the potential for the reactor cavity blowout panels to block the 6-inch drain in the refueling canal and explains that a raised wire basket was installed over the drain to prevent this from occurring. The specific volume of water that could be held up in the refueling canal, prior to the wire basket being installed, is also stated. This volume could not be easily verified and is irrelevant since the wire basket has been installed to preclude the potential for the reactor cavity blowout panels from blocking the 6-inch drain in the refueling canal, precluding water from being held up. Also, Section 6.2.2.3.2, Recirculation Spray Pump Net Positive Suction Head, indicates that the fuel transfer canal receives 11% of the spray falling into the refueling cavity and the resultant spray water accumulation in the refueling cavity is negligible. This Section 6.2.2.3.2 also states that a sufficient margin of NPSH is available over and above that required for satisfactory pump operation for all post-LOCA conditions. Therefore, the detailed information on the volume of water that could have been potentially held up in the refueling canal will be deleted.

The proposed change does not change the discussion of the wire baskets installed over the transfer canal drains and still provides the basis for installing the baskets. There are no commitment changes as a result of this proposed change. Since the proposed change accurately reflects the design basis of the wire basket installed over the drain, and does not affect the operability of the drain, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. This change does not add any new equipment or alter the manner in which the SI system or any other SSC's important to safety are operated; therefore, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 21
Correct the K Input to THREED between Nodes 1-7 and the Vent Area between nodes 5-7 in Table 6.2-34 to reflect the results of Calculations 11715-ES-109, "Geometric Configuration and Flow Parameters for a Nodalization Study of SG Cubicle," and 11715-ES-183, "Differential Pressure Transients in the Steam Generator Cubicle for a New Design." Also, clarify the statement that refers to Table 6.2-34 to indicate that the data is for steam generator the Five-Node Model. Table 6.2-34 presents the summary of vent areas, pressure loss coefficients, and vent flow models for the steam generator Five-Node Model (8 Nodes Total). This data originated from Calculation 11715-ES-109 and was also used as an input to Calculation 11715-ES-183. Figure 6.2-44 and Calculations 11715-ES-109 and 11715-ES-183 indicate the vent are for nodes 5-7 as 202.3 ft2; however, Table 6.2-34 incorrectly indicates the vent area for nodes 5-7 as 207.3 ft2. This proposed change will correct that error. The loss coefficient (K) for nodes 1-7 that was used as an input to the THREED code for the steam generator Five-Node Model is also incorrectly identified in Table 6.2-34 as 0.05; the K values indicated in Calculations 11715-ES-109 and 11715-ES-183 is 0.5. A correction to this error is also proposed.

The title of Table 6.2-34 identifies that the data is for the Steam Generator Uplift Analysis Five-Node Model (8 Nodes Total). The statement referring the reader to Table 6.2-34 is confusing and will be revised to indicate to the reader that the data is for the steam generator Five-Node Model (8 Nodes Total), as specified in the table's title.

The proposed changes do not change the intent of the original statement or table. The design basis of the steam generator uplift analysis is unchanged and there are no commitment changes. Since the proposed change accurately reflects the steam generator subcompartment analyses calculations and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the UFSAR to reflect the subcompartment analyses calculations, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 22
Clarify the details of Type A and Type B tests, in Sections 6.2.1.4.2, 6.2.1.4.3, and 6.2.7.2 so that the requirements of ANSI/ANS 56.8-1994, Containment System Leakage Testing Requirements, as referenced by 10 CFR 50 Appendix J, Option B, are accurately stated. Sections 6.2.1.4.2 and 6.2.1.4.3 provide a description of Type A tests and Type B tests, respectively, performed at North Anna Power Station. Both of these containment leakage tests are performed as required by 10 CFR 50, Appendix J, Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors, Option B, as modified by approved exemptions, and in accordance with the guidelines contained in Regulatory Guide 1.163, Performance-Based Containment Leak-Test Program, dated September 1995. Regulatory Guide 1.163 indicates that detailed descriptions of the technical methods and techniques for performing Types A, B, and C tests are documented in ANSI/ANS-5 6.8-1994, "Containment System Leakage Testing Requirements."

This proposed change will clarify the requirements of ANSI/ANS-56.8-1994 in Sections 6.2.1.4.2, 6.2.1.4.3, and 6.2.7.2. Following is a detailed description of each change:

a. The venting or removal of equipment not designed to withstand periodic testing at Pa will be expanded to indicate that this equipment will be vented, vented and drained, drained, or removed as required prior to the testing program.

b. The description of equipment will be expanded to indicate that the equipment used to perform Type A tests is not limited to only that within the containment leakage monitoring system. Acceptable temporary test equipment that meets the requirements of ANSI/ANS 56.8-1994 is also acceptable.

c. The description of the test gas will be clarified to indicate that air or nitrogen will be used as indicated in Section 3.3.5 (Test Medium) of ANSI/ANS-56.8-1994.

These changes are acceptable because the requirements of 10 CFR 50, Appendix J and the operating license; specifically Technical Specification 4.4, "Containment Tests," continue to be met. In addition, the proposed changes do not alter the design basis of the containment or change a commitment. The proposed change reflects current approved testing in accordance with 10 CFR 50, Appendix J and does not alter the original intent of Section 6.2.1.4. Since the proposed change does not alter the ability to perform leakage tests that verify containment integrity or challenge this integrity, and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the Type A and B tests as described in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 23
Revise Section 6.2.1.4.3 to indicate that each containment penetration is configured to permit required testing since each penetration is not permanently equipped with test instrumentation and fittings for test purposes, as currently stated. Section 6.2.1.4.3, Type B Tests, describes the test methods used to locate leaks and states that each penetration is permanently equipped with test instrumentation and fittings for test purposes. This is an incorrect statement because some of the penetrations are not permanently equipped

with test instrumentation, e.g., the airlocks and the equipment hatch. For these penetrations, temporary test instrumentation is installed to facilitate Type B testing.

Changing the statement in Section 6.2.1.4.3 to accurately describe the penetration configuration for test purposes is acceptable since the capability to test the penetrations, as required by 10 CFR 50 Appendix J, is not altered. In addition, this correction does not change the intent of the original statement, impact and design basis information, or change a commitment. The proposed change reflects current approved testing in accordance with 10 CFR 50, Appendix J and does not alter the original intent of Section 6.2.1.4.3. Since the proposed change does not alter the ability to perform leakage tests that verify containment integrity or challenge this integrity, and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the specific description of the Type B test as described in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 24
Change the specific description of a bubble test rig, in Section 6.2.1.4.3, to provide a general description of the Type B test process. In addition, specify that other flow measuring devises besides a bubble test rig are acceptable for the performance of Type B testing. Section 6.2.1.4.3 describes the Type B test program employed at North Anna Power Station. Currently, one of the paragraphs in Section 6.2.1.4.3 states that a bubble test rig may be used to check component leakage. A description of the specific operation of a bubble test rig is also provided. Although it is correct that a bubble test rig may be used, ANSI/ANS 56.8-1994 (Part 4.3.2 - LLRT Measurement system) does not specify the test apparatus that must be used, it only states the required measurement system accuracies. Therefore, this paragraph will be revised to indicate that other acceptable flow measuring devices may be used, and the description of the test process will be changed to provide a general description of the test process, not the specific operation of a bubble test rig.

The proposed clarification does not change the intent of the original statement, impact any design basis information, or change a commitment. The proposed change reflects current approved testing in accordance with 10 CFR 50, Appendix J and does not alter the original intent of Section 6.2.1.4.3. Since the proposed change does not alter the ability to perform leakage tests that verify containment integrity or challenge this integrity, and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the specific description of the Type B test as described in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 25
Revise Section 6.2.1.4.4 to indicate that all containment isolation valves subject to Type C testing will be tested at a pressure >= Pa and that the containment side of each valve will be pressurized with air or nitrogen. Also, revise the statement, which indicates that a flow meter is connected to the opposite side of the valve from the pressure source to measure any leakage. The words, "after plant operation," are also removed from the introductory statement. Section 6.2.1.4.4 provides a description of the Type C testing performed on the containment isolation valves. The introductory statement to this section indicates that Type C testing will be performed after plant operation. The last portion of this statement will be deleted since it refers to initial plant operation and is therefore, obsolete. The second paragraph in Section 6.2.1.4.4 states, "Where possible, containment isolation valve leakage will be tested at a pressure greater than or equal to Pa." This statement will be clarified to better describe what "where possible" means. This paragraph also states that each valve will be pressurized with air or nitrogen, where system configuration

exists. This exception is not applicable to North Anna since all the valves subject to Type C testing are pressurized without exception. Also, within this paragraph is a statement which indicates that a flow meter is connected to the opposite side of the valve from the pressure source to measure any leakage. This type of arrangement is not always utilized at North Anna and is not required to be used because ANSI/ANS Standard 56.8-1994 Section 6.4.2 only requires that the makeup flow rate be measured, but does not specify the location for the flow meter. Consequently, the second paragraph in Section 6.2.1.4.4 will be revised to accurately reflect the Type C testing performed at North Anna.

The proposed corrections/clarifications do not change the intent of the original statement or affect the ability to perform Type C testing required by 10 CFR 50 Appendix J. The design basis of the containment isolation valves is unchanged. The proposed change reflects current approved testing in accordance with 10 CFR 50, Appendix J and does not alter the original intent of Section 6.2.1.4.3. Since the proposed change does not alter the ability to perform leakage tests that verify containment integrity or challenge this integrity, and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the specific description of the Type C test as described in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 26

Clarify the discussion of Type C testing for redundant valves, in Section 6.1.2.4.4, to indicate that the test pressure may be applied in a direction other than from the containment side of each valve, if the test will yield equivalent or more conservative results, as specified in ANSI/ANS-56.8-1994. Section 6.2.1.4.4 provides a description of the Type C testing performed on the containment isolation valves. As part of this description, the UFSAR states that redundant valves may be tested simultaneously, if necessary, by applying the pressure through the pipe volume between the isolation valves. This statement is misleading because it does not fully describe the requirements of the test pressure direction as specified in 10 CFR 50, Appendix J and ANSI/ANS-56.8-1994, Section 6.2. 10 CFR 50, Appendix J and Section 6.2 of ANSI/ANS-56.8-1994, Direction of Testing, requires that the test pressure be applied in the same direction that would occur during a DBA, unless it can be shown that the results from applying the pressure in a different direction will provide equivalent or more conservative test results. Consequently, this statement in Section 6.2.1.4.4 will be revised to accurately reflect the Type C testing performed at North Anna.

The proposed corrections do not change the intent of the original statement or affect the ability to perform Type C testing required by 10 CFR 50 Appendix J. The design basis of the containment isolation valves is unchanged. The proposed change reflects current approved testing methods specified in 10 CFR 50, Appendix J and ANSI/ANS-56.8-1994 and does not alter the original intent of Section 6.2.1.4.3. Since the proposed change does not alter the ability to perform leakage tests that verify containment integrity or challenge this integrity, and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the specific description of the Type C test as described in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 27

Change Sections 6.2.2.1 and 6.2.2 to reflect changes that were proposed and approved in UFSAR Change Package FN 95-012, but not implemented. These changes are as follows:

a. In Section 6.2.2.1, delete the reference to Table 6.2-40.

b. In Section 6.2.2.3.2.4, reference table 6.2-46 since it supports the described results.

c. In Section 6.2.2.3.3, change a statement to accurately describe the results shown in Table 6.2-47. UFSAR Change Package FN 95-012 and supporting safety evaluation 94-SE-MOD-084 supported DCP

93-011, North Anna Unit 2 Steam Generator Replacement. This package was very large and contained a lot of UFSAR changes which included the deletion of tables in Section 6.2, since they contained obsolete Unit 2 data, and the addition/change of tables to reflect the consolidation of the Unit 1 and Unit 2 new analyses. At the time this package was prepared and implemented, there was no electronic search capability available for the UFSAR. Consequently, some figures were deleted/revised and the supporting statements in the UFSAR were not updated to reflect these changes. Following is a justification for each of the above-identified changes:

a. Table 6.2-40, "Sensitivity of Containment Depressurization to Single Failures," indicated the depressurization time and the pressure and temperature for the third peak with different equipment availability. This table was deleted and the text in Section 6.2, which directs the reader to this table, was not. (Table 6.2-40 is now an existing Table in the current UFSAR and has a pointer in another section that accurately describes that table). This proposed change will delete the paragraph in Section 6.2.2.1 that references Table 6.2-40.

b. Section 6.2.2.3.2.4 describes the effect service water temperature and RWST temperature have on the NPSH for the IRS, ORS, and LHSI pumps during an accident. In this section, a summary of the sensitivity study results is described; however, FN 95-012 deleted the table showing these results. When FN 95-012 deleted the results table, it replaced the table with a table containing similar results; however, the text in Section 6.2.2.3.2.4 was only changed to delete the reference to the old table instead of changing it to reference the new table. This proposed change will add text to refer the reader to the table that indicates the described results that service water and RWST temperatures have on NPSH.

c. Section 6.2.2.3.3, "Depressurization Time," provides discussions of the results different scenarios have on depressurization time. In this section, there is a statement that references a figure which is supposed to show that depressurization time and third peak pressure are insensitive to initial dry bulb and dewpoint temperatures for an air partial pressure of 9.25 psia. FN 95-012 replaced the referenced table with a new table and proposed a change to this sentence to accurately describe that table, "Sensitivity of Depressurization and Subatmospheric Peak Pressure to SI Flow Rate During Injection Mode." However, the proposed mark-ups were not incorporated into the UFSAR. This change will revise the UFSAR to reflect the changes proposed and approved in FN 95-012. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 29
Revise the discussion of insulation debris, stated in Section 6.2.2.2, to reflect the methodology used in the latest approved sump debris calculation, 02072.7410 US(B)-275, "Pressure Drop Across Emergency Sump Screens Due to Debris." The existing discussion on insulation debris provided in Section 6.2.2.2 was a result of the methodology in Calculation 02072.1610 US(B)-273. Calculation 02072.1610 US(B)-273 has been superceded by 02072.7410 US(B)-275. The proposed change replaces the words discussing fine and fluffy fragments with a description of shreds as reflected in the methodology for categorization of debris and transport mechanism in the latest approved calculation.

The proposed revision accurately reflects the current analysis for insulation debris and transport and does not change the intent of the original statement, impact any design basis information, or change a commitment. Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of insulation debris and the transport mechanisms, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub 30
Remove the reference to Table 6.2-44 in the discussion of the thermal insulation used in containment provided in Section 6.2.2.3 because FN 95-012 deleted Table 6.2-44. Also, delete Table 6.2-39 since FN 95-012 deleted the statement that referred the reader to Table 6.2-39. Section 6.2.2.3 provides a discussion of the design evaluation of the Containment Depressurization System. Within this section, the seven types of insulation used in containment are discussed and the reader is directed to Table 6.2-44 for a list of the different types of insulation. This table also provided a list of the different types of insulation in the steam generator cubicles along with the estimated area and volume of each type of insulation. The table being referred to here no longer exists since it was deleted by UFSAR Change Package FN 95-012, Unit 2 Steam Generator Replacement, and supporting safety evaluation 94-SE-MOD-084; however, the reference to the table was not removed. This table was deleted by FN 95-012 because some of the Transco Metallic Reflective insulation used in containment was removed with the old steam generators and replaced with fiberglass blankets; there was no need to recalculate the area and volume because this was excessive detail and fiberglass insulation used was already indicated in the table. Therefore, seven types of insulation still existed within the containment. The discussion of the seven types of insulation in Section 6.2.2.3 further states that each insulation was analyzed for leachable chlorides. This statement is also true for the type of fiberglass insulation installed by the steam generator replacement project. Therefore, it was acceptable to delete the referenced table via FN 95-012. FN 95-012 also removed the pointer to Table 6.2-39, "Particle Distribution, All Particle Sizes, Containment Particle Sampling Analysis," because of the insulation change. Therefore, Table 6.2-39 will be deleted.

The proposed change deletes the reference to Table 6.2-44 since the table no longer exists, and deletes Table 6.2-39 since the pointer to this table no longer exists. This is acceptable because these changes were evaluated in Safety Evaluation 94-SE-MOD-084. The intent of the original statement is unchanged, no design basis information is impacted, and there are no commitment changes. This change will revise the UFSAR to reflect the changes approved in FN 95-012. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 31
Delete Section 6.2.2.3.2.7 since FN 97-024 deleted the figures indicated in this section and the remaining statement in this section is reflected in another UFSAR statement in Section 6.2.2.3.2.4. Section 6.2.2.3.2.7 states, "A HLDER for the lower extreme of service water temperature (35 degrees) is the limiting case for the recirculation spray pumps NPSH," and indicates that the time histories for various parameters are shown in figures provided in Section 6.2. The specific figures referred to in this section were deleted by UFSAR Change Package FN 97-024 and its supporting safety evaluation 97-SE-OT-029, which implemented revised flowrates for QS, IRS, ORS, and SW resulting from the new containment analysis. However, although FN 97-024 deleted the figures referenced in Section 6.2.2.3.2.7, it did not delete the associated text referring to these figures. Section 6.2.2.3.2.4 states, "For the recirculation spray pumps, cold service water is more limiting because containment pressure is reduced rapidly, allowing the sump water to become saturated." Consequently, Section 6.2.2.3.2.7 will be deleted since FN 97-024 deleted the referenced figures and Section 6.2.2.3.2.4 contains the same information as the remainder of Section 6.2.2.3.2.7 once the text referencing the deleted figures is removed.

The proposed deletion of Section 6.2.2.3.2.7 is acceptable because the significant portion of this section is contained in another UFSAR section. No design basis information is impacted and no commitments are changed. This change will revise the UFSAR to reflect the changes approved in FN 97-024 and will remove duplicate information contained elsewhere in the UFSAR. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 36
Change the number of days that it would take the containment mechanical vacuum pumps to decrease the containment pressure by 1-psi in Section 6.2.6.3. Section 6.2.6 discusses how the containment vacuum system is used to obtain the initial subatmospheric pressure in the containment and to maintain that pressure during normal unit operation. Currently, the UFSAR states that the mechanical vacuum pumps each have the capacity for removing inleakage at a rate of 40 scfm and that it would take a vacuum alarm system failure and uninterrupted operation of the vacuum pumps for approximately 8 days to result in a 1-

psi decrease in containment pressure. However, when using the required capacity of 40 scfm specified in NAS-449, "Containment Vacuum Pumps," is used to calculate the number of days it would take one pump to decrease the containment pressure by 1-psi, 4 days is the result. Consequently, the UFSAR will be corrected to accurately reflect the number of days it would take, with uninterrupted operation of the vacuum pumps, to result in a 1-psi decrease in containment pressure.

The proposed change does not change the intent of the original statement because the discussion of decreasing the containment pressure due to continuous uninterrupted operation of the vacuum pumps is maintained. Reducing the number of days from 8 days to 4 days still allows the operator ample time to detect a problem since containment pressure is continuously monitored via 1/2-LOG-4 which is performed twice daily. This change does not affect the operability of the containment vacuum system or alter the performance characteristics of any SSC's important to safety and therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. This change does not add any new equipment or alter the manner in which the containment vacuum system or any other SSC's important to safety are operated; therefore, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 37

Clarify Section 6.2.7 to accurately describe the leakage monitoring system by describing the original installed system and the current operation of the LMS. Modify the text in Section 6.2.7.2 to distinguish between the installed Leakage Monitoring System (LMS) and the temporary LMS instrumentation that may be installed during Type "A" testing.

Also, change Figure 6.2-85 as follows:

a. Reflect the current installed Leakage Monitoring System (LMS).
b. Indicate the correct valve positions of the valves.
c. Indicate the moisture and temperature indicators.
d. Add two additional installed valves. Section 6.2.7 states that the Leakage Monitoring System (LMS) is used for periodic leak testing of the containment in accordance with 10 CFR 50, Appendix J and for periodically measuring air leakage into the containment during normal unit operation. Part of this statement is incorrect because the LMS has never been used during normal operation to measure air leakage into the containment. As documented in EWR 92-038 and supporting Safety Evaluation 92-SE-MOD-052, the "reference volume" method of containment leakage monitoring has never been used. The "reference volume" method would utilize the sealed sensor portion of the LMS. A UFSAR change package was prepared, as part of EWR 92-038, but did not clarify this point although it did remove information about the "reference volume" method. Therefore, Sections 6.2.7 and 6.2.7.2 will be revised to accurately reflect the current method of operating the LMS, as evaluated and approved in safety evaluation 92-SE-MOD-052.

Figure 6.2-85 provides a schematic diagram of the installed Leakage Monitoring System but does not accurately reflect the system as presented on controlled Drawings 11715/12050-FM-092A, Sheet 1. These drawings show the temporary Type "A" test connections that are utilized to install temporary equipment during Type "A" testing, as allowed by ANSI/ANS-56.8-1994. Figure 6.2-85 and the text in Section 6.2.7 will be revised to reflect the installed system, which provides Type "A"" test connections and allows for the installation of temporary test equipment. Figure 6.2-85 will also be corrected to show all the LMS trip valves in their normal operating position as verified by Operating Procedure 1/2-OP-7.9A, Valve Checkoff - Containment Leakage Monitoring System. This operating procedure and controlled Drawings 11715/12050-FM-092A, Sheet 1, confirms that the installed LMS trip valves are in the closed position prior to startup following a refueling outage and shows that there are two additional trip valves in the installed LMS that are not shown on Figure 6.2-85.

The proposed changes resolve deviations between current operating practice and the description of the operation as presented in the UFSAR. They do not change the intent of the original statement, alter the design basis of the containment LMS or change a commitment. This change will revise the UFSAR to reflect the changes approved in EWR 92-038. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 38
Change the description of the leakage monitoring system components that are required to operate after an accident, as indicated in Section 6.2.7.3. A portion of Section 6.2.7.3 states that the leakage monitoring system (LMS) is not required to operate after an accident. This is an incorrect statement because Procedure 1/2-E-0 utilizes the containment wide range pressure transmitters to monitor post accident containment pressure. Also, Technical Report PE-0013, Revision 6, "North Anna Power Station Response to Regulatory Guide 1.97," lists the containment intermediate and wide range pressure transmitters and the containment atmosphere temperature transmitters as Regulatory Guide 1.97 variables. Consequently, the UFSAR will be revised to accurately reflect that some of the leakage monitoring system instrumentation is required to operate after an accident.

The proposed change does not change the intent of the original statement because it still discusses the operation of the LMS instruments following an accident. The design basis of the LMS is unchanged and no commitments are changed. Since the proposed change does not affect the leakage monitoring system (LMS) integrity, involve physical changes to the facility, or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because this change only involves changing the description of the LMS components that are required to operate after an accident as described in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 39
Revise Section 6.2.7.4 to indicate that primary test instruments are calibrated before the integrated leak rate tests. Also, clarify that the statement about instruments being tested and calibrated on a regular basis during normal station operation is for the Leakage Monitoring System (LMS) instruments. Section 6.2.7 describes the leakage monitoring system that was used for pre-operational and is currently used for periodic leak testing of the containment in accordance with 10 CFR 50, Appendix J. Section 6.2.7.4, Tests and Inspections, currently states that all instruments are calibrated before the integrated leak rate tests. This statement is misleading because not all LMS instruments are calibrated prior to the integrated leak rate tests (ILRT). ANSI/ANS-56.8-1994, Section 4.1, Calibration, requires that primary test instruments used during the ILRT be calibrated before the test. Therefore, the statement about "all" instruments being tested and calibrated during normal station operation will be clarified to indicate that the instruments being referred to are the LMS instruments.

The proposed clarification does not change the intent of the original statement, impact any design basis information, or change a commitment. The proposed change reflects current approved testing in accordance with 10 CFR 50, Appendix J and does not alter the original intent of Section 6.2.7.4. Since the proposed change does not alter the ability to perform leakage tests that verify containment integrity or challenge this integrity, and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the specific description of the integrated leak rate test instruments as described in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 40

Revise Section 6.2.7.5 and Table 6.2-58 to accurately describe the permanently installed leakage monitoring system instrumentation that may be utilized during Type "A" testing. Section 6.2.7.5 states, "The instrumentation provided for the leakage monitoring system is described in preceding Sections 6.2.7.1 and 6.2.7.2, and Table 6.2-58." Sections 6.2.7.1 and 6.2.7.2 describe both the permanently installed LMS instrumentation and the temporary test instrumentation that may be installed during Type "A" testing, as allowed by ANS/ANSI-56.8-1994. The permanently installed LMS instrumentation accuracy, resolution and repeatability meets the requirements of ANS/ANSI-56.8-1994. Although Sections 6.2.7.1 and 6.2.7.2 describe the temperature detectors, dewpoint sensors and pressure transmitters utilized during Type "A" testing, Table 6.2-58 only indicates the makeup air system volumetric flow meter. Therefore, Table 6.2-58 and Section 6.2.7.5 will be clarified and revised to accurately describe the permanently installed leakage monitoring system instrumentation that may be utilized during Type "A" testing.

This proposed change does not change the intent of describing the LMS instrumentation, affect the design basis of the LMS, or change a commitment. The proposed change reflects current approved testing in accordance with 10 CFR 50, Appendix J and does not alter the original intent of Section 6.2.7.5. Since the proposed change does not alter the ability to perform the Type A test, and there are no physical changes to the facility or required procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the specific description of the Type A test as described in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 42

Change the vent area of the "Passageway in ceiling of incore instrumentation tunnel" in Table 6.2-22 to accurately reflect the results of Calculation 11715-243N, Rev. 0, "Reactor Cavity Free volume and Vent Area." Table 6.2-22 provides a tabulation of all vents from the reactor cavity showing the vent area and the compartment to which the vent is discharged. The source of this table is Calculation 11715-243N, Rev. 0, "Reactor Cavity Free Volume and Vent Area", dated 6/6/74. All the values in Table 6.2-22 are consistent with Calculation 11715-243N except for the "passageway in ceiling of incore instrumentation tunnel," which has an indicated vent area of 40.3 ft^2 instead of 60 ft^2 as indicated in the Calculation. Calculation 11715-ES-126, Rev. 0, "Reactor Cavity Analysis - Annulus, Lower Reactor Cavity, and Incore Instrument Tunnel," also confirms the vent area between the incore instrument tunnel and the incore instrument tunnel access hatch as 60 ft^2. Apparently, there was a transcription error when placing the value of the passageway in ceiling of incore instrumentation tunnel into the UFSAR. This proposed change will correct Table 6.2-22 to accurately reflect the results of Calculation 11715-243N and 11715-ES-126.

This change corrects an inconsistency between controlled calculations and the results of the calculations presented in the UFSAR. The intent of the original statement is not changed, no design basis information is impacted, and no commitments are changed. Since the proposed change accurately reflects the results of the reactor cavity free volume and vent area, which is used in the subcompartment analyses, and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the vent area of the "Passageway in ceiling of incore instrumentation tunnel," and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 43

Revise Table 6.2-28 and Table 6.2-30 to accurately reflect the results of Calculation 11715-BF-164, Rev. 0, "Asymmetric Pressure Loads on Steam Generator and Reactor Coolant Pump Supports due to Break #7."

Table 6.2-28 provides the vent areas, K-factors, and vent flow models used in the two-node concrete shield wall analysis. Table 6.2-30 provides the vent areas, K-factors, and vent flow models used in the seven-node differential pressure analysis across the steam generator subcompartment walls. Calculation 11715-BF-164, Rev. 0, "Asymmetric Pressure Loads on Steam Generator and Reactor Coolant Pump Supports due to Break #7," is the calculation for the shield wall analysis. The results of this calculation are presented in Tables 6.2-28 and 6.2-30; however, there were transcription errors when placing the results into the UFSAR. This proposed change will correct Table 6.2-28 and Table 6.2-30 to accurately reflect the results of Calculation 11715-BF-164.

This change corrects an inconsistency between controlled calculations and the results of the calculations presented in the UFSAR. The intent of the original statement is not changed, no design basis information is impacted, and no commitments are changed. Since the proposed change accurately reflects the results of the K values input to THREED code in the two-node and seven-node steam generator subcompartment nodalization analyses, and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting the description of values used in nodalization studies, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 44

Revise Table 6.2-35 and 6.2-36 to accurately reflect the results of Calculation 11715-ES-119, "RELAP Analysis of Pressurizer Cubicle Peak Pressure Drop." Table 6.2-35 provides the vent areas, K-factors, and vent flow models used in the pressurizer cubicle subcompartment analysis and Table 6.2-36 provides the length-to-area ratios used in RELAP4 for the pressurizer cubicle analysis. Calculation 11715-ES-119, "RELAP Analysis of Pressurizer Cubicle Peak Pressure Drop," is the calculation for the RELAP analysis of the pressurizer subcompartment pressure response. The results of this calculation are presented in Tables 6.2-35 and 6.2-36; however, there were transcription errors when placing the results into the UFSAR. This proposed change will correct Tables 6.2-35 and 6.2-36 to accurately reflect the results of Calculation 11715-ES-119.

This change corrects an inconsistency between controlled calculations and the results of the calculations presented in the UFSAR. The intent of the original statement is not changed, no design basis information is impacted, and no commitments are changed. Since the proposed change accurately reflects the results of the pressurizer subcompartment analyses, and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting the description of values resulting from subcompartment analyses, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 45

Change the number of penetrations indicated in Table 6.2-37, "Major Piping Penetrations through the Reactor Containment Structure," for the reactor vessel level indication system. Table 6.2-37 provides a list of major piping penetrations through the reactor containment structure. The penetration for the reactor vessel level indication system (RVLIS) on this drawing indicates that there is only one penetration for this system. Table 6.2-54 and Drawings 11715/12050-FV-1A and 13075-FM-093C indicate that penetrations 55 and 117 are both penetrations for the reactor vessel level indication system, trains A and B, respectively. In addition, Design Change Package 80-48 and the supporting safety evaluation indicate that penetrations 55 and 117, once spares, were used for the RVLIS. The line size currently indicated in the UFSAR is 3/8 inch. This is incorrect because according to drawing 13075-FK-13N-1, the pipe penetrating the containment wall is 1/4 inch. Table 6.2-37 for the RVLIS also indicates that there is also an Auto-Trip isolation valve provided inside and outside containment. Although there are isolation valves inside and outside containment for the RVLIS, the isolation valve inside containment is a sensor bellows, and the isolation valve outside containment is a hydraulic isolator. Both of these valves continue to provide isolation of the containment atmosphere from the outside atmosphere during an accident and continuously during normal operation. This proposed change will revise Table 6.2-3 to accurately reflect the installed RVLIS.

This proposed change is made to reflect current configuration for the reactor vessel level indication system, and should have been updated during the design change process. This change updates the UFSAR to reflect the installed RVLIS system evaluated, approved, and installed by DCP 80-40. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 46
Revise Figures 6.2-11, 6.2-13, 6.2-15, 6.2-16, 6.2-17, and 6.2-18 to accurately reflect Calculations 11715-ES-125, Rev. 0, "Upper Reactor Cavity Nodalization Study," and 11715-ES-126, Rev. 0, "Reactor Cavity Analysis Annulus Lower Reactor Cavity and Incore Instrumentation Study." Calculations 11715-ES-125 and 11715-ES-126 provide Nodalization studies that calculate the pressure transient in the upper reactor cavity and the reactor annulus, lower reactor cavity and incore instrumentation tunnel (IIT) following a cold leg limited displacement rupture in the upper reactor cavity, respectively. Currently, UFSAR Figures 6.2-11, 6.2-13, 6.2-15, 6.2-16, 6.2-17, and 6.2-18 do not agree with the corresponding figures presented in these calculations or the numerical values used within the calculations to determine the pressure transient. Although it is unclear as to where the current erroneous values originated, this is irrelevant because the values in the calculations were the ones that were used to determine the peak pressure transients in various subcompartments for design consideration purposes. The identified figures will be corrected to accurately reflect the analyses calculations.

This change corrects an inconsistency between approved design calculations and the figures representing these calculations that are presented in the UFSAR. Since the proposed change accurately reflects the results of nodalization studies for the upper reactor cavity, lower reactor cavity and incore instrumentation tunnel, and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting the description of the nodalization studies, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 47
Change the value of "420.0 FT^2" between Nodes 4 and 6, on Figure 6.2-46, to "42.0 FT^2," to accurately reflect the results of Calculation 11715-ES-115, "Pressurizer Cubicle Geometry & Loss of Coefficients." Figure 6.2-46 provides the nodal configuration used for the pressurizer subcompartment pressure response analysis using the THREED computer code. Calculation 11715-ES-115, "Pressurizer Cubicle Geometry & Loss of Coefficients," is the calculation for the THREED analysis of the pressurizer subcompartment pressure response. The nodal arrangement used in this calculation is presented in Figure 6.2-46; however, there was a transcription error when placing the Node 4 results into the UFSAR. This proposed change will correct Figure 6.2-46 to accurately reflect the results of Calculation 11715-ES-115.

This change corrects an inconsistency between controlled calculations and the results of the calculations presented in the UFSAR. The intent of the original statement is not changed, no design basis information is impacted, and no commitments are changed. Since the proposed change accurately reflects the results of nodalization studies for the pressurizer cubicle, and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting the description of the pressurizer nodalization study, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 48
Revise Figure 6.2-84, "Containment Vacuum System," to accurately reflect which valves are administratively controlled. Figure 6.2-84 provides a schematic diagram of the Containment Vacuum System. Currently, this drawing indicates that valves 1-CV-4 (2-CV-4) and 1-CV-6 (2-CV-6) have their valve position maintained by administrative control. However, according to the NAPS Technical Requirements Manual (TRM) Tables 5.1-1 and 5.1-2 and Drawings 11715/12050-FM-092A, Sheet 2, valves 1-CV-4 (2-CV-4) and 1-CV-TV-100 (2-CV-TV-200) are the Containment Vacuum System valves that have their valve position maintained by administrative control. Consequently, Figure 6.2-84 will be corrected to reflect the valve position requirements maintained at the plant, as specified in the Technical Requirements Manual and the associated controlled drawings.

The proposed revision resolves a deviation between current operating practice and the description of the operation presented in the UFSAR. The proposed correction does not change the intent of the original statement, impact the design basis of the Containment Vacuum System, or change a commitment. Correcting the valve position requirements in Figure 6.2-84 to accurately reflect current plant operation does not change the intent of the figure, impact any design basis information, or change a commitment, and is, therefore, acceptable. This change does not affect the operability of the valves or alter the performance characteristics of the containment vacuum system and therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. This change does not add any new equipment or alter the manner in which the containment vacuum system or any other SSC's important to safety are operated, therefore, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 49
Correct the description of how the net free containment volume is calculated in Section 6.3.3.12. Section 6.3.3.12, Minimum Containment Pressure Analysis, indicates that the net free containment volume used in the containment response analysis is calculated based on containment dimensions, volume of installed equipment, and 5% additional volume to account for any uncertainties. This is an incorrect statement because Calculation 11715-ES-150, Rev. 2, LOCTIC Input (Containment Integrity), and the sources for the net free containment volume used in 11715-ES-150, Rev. 2, do not include any additional volume to account for uncertainties. Also, the net free containment volume value used in 11715-ES-150 accounts for the containment interior concrete volumes.

Calculation 11715-ES-150 is an input to the containment response Calculations, 02072.2010-US(B)-274 and 01040.7910-US(B)-278. The results of these calculations show that the acceptance criteria are met.

Therefore, since there is no requirement to include any additional volume to account for uncertainties and the containment response acceptance criteria continue to be met, it is acceptable to correct the description of the containment net free volume used in the containment response analysis. This change accurately reflects the current containment response AOR and, therefore, is acceptable. Since the proposed change accurately reflects the containment volume used in the accident analyses and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of how the net free containment volume, used in the accident analyses, and does not involve physical changes to the facility or the manner in which the facility is operated or the manner in which the ECCS responds to an accident, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 50
Correct the thickness' of the safety injection accumulator, refueling cavity liner, and the reactor head storage stand, in Table 6.3-8, to accurately reflect Calculation 11715-233N, "Containment Heat Sinks," dated March 5, 1974. Also, the item description for numbers 13 and 17 in Table 6.3-8 will be corrected to accurately describe the intended equipment. Table 6.3-8 provides a detailed listing of containment heat sinks. Currently, Table 6.3-8 indicates the thickness' of the safety injection accumulator, refueling cavity liner, and the reactor head storage stand as 0.195, 0.031, and 0.033 ft., respectively. The source of these values is Calculation 11715-233N, "Containment Heat Sinks," dated March 5, 1974. The information in Table 6.3-8 was incorrectly transcribed from the table in Calculation 11715-233N. The proposed changes accurately reflect the calculation and the values used within the calculation to determine the material weight. Changing the thickness' of the safety injection accumulator, refueling cavity liner, and the reactor head storage stand presented in Table 6.3-8 does not affect the accident analyses because the corrected values represent the material thickness values that are used as an input to the LOCTIC code that determines the containment response following a LOCA. A summary listing of heat sinks used in the containment LOCA response code are provided in Table 15.4-2.

The item description for numbers 13 and 17 in Table 6.3-8 are incorrect and will be corrected to accurately describe the intended equipment.

The proposed revision resolves a deviation between current installed equipment and the description of the equipment presented in the UFSAR. The revision does not remove discussion of the containment heat sinks, but presents the correct thickness for the safety injection accumulator, refueling cavity liner, and the reactor head storage stand. Therefore, this change does not modify the intent of describing the containment heat sinks presented in the original UFSAR statement. Since the proposed change accurately reflects values used as an input to the code that determines the containment response following a LOCA, and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting the description of values used in the accident analyses, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 52
Change the reference for note "b" in Table 6.2-23 from the column titled Vent Area to the specific nodes to which note "b" applies since this note does not apply to all nodes indicated in Table 6.2-23. Table 6.2-23 provides the summary of vent areas, pressure loss coefficients, and vent flow models used in the 12-Node upper reactor cavity model. Calculation 11715-ES-125, "Upper Reactor Cavity Nodalization Study," is the calculation for the 12-Node upper reactor cavity model study. The results of this study are presented in Table 6.2-23; however, there was a transcription error when placing the note "b" into the UFSAR. This proposed change will correct Table 6.2-23 to accurately reflect the results of Calculation 11715-ES-125.

This change corrects an inconsistency between controlled calculations and the results of the calculations presented in the UFSAR. The intent of the original statement is not changed, no design basis information is impacted, and no commitments are changed.

This change corrects an inconsistency between controlled calculations and the results of the calculations presented in the UFSAR. The intent of the original statement is not changed, no design basis information is impacted, and no commitments are changed. Since the proposed change accurately reflects the results of nodalization studies for the upper reactor cavity, and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting the description of the 12-Node upper reactor cavity model study, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 53
Change the Vent Area between Nodes 4-5 in Table 6.2-24 from 45.36 ft^2 to 39.52 ft^2 and change the Vent Area between Nodes 5-6 in Table 6.2-25 from 45.36ft^2. to 39.52ft^2. Also, change the Vent Area between Nodes 5-7 and 6-7 in Table 6.2-26 from 2.8 ft^2 to 2.18 ft^2 and 34.45 ft^2 to 28.61 ft^2, respectively. Tables 6.2-24, and 6.2-25, provide the summary of vent areas, pressure loss coefficients, and vent flow models used in the 5-Node and 6-Node reactor annulus models, respectively. Table 6.2-26 provides the summary of vent areas, pressure loss coefficients, and vent flow models used in the 7-Node incore instrumentation tunnel model. Calculation 11715-ES-126, "Reactor Cavity Analysis Annulus Lower Reactor Cavity and Incore Instrumentation Study," is the calculation for the 5-Node and 6-Node reactor annulus model studies and the 7-Node incore instrumentation tunnel model studies. The results of these studies are presented in Tables 6.2-24, 6.2-25, and 6.2-26; however, there was a transcription error when placing the resultant values into the UFSAR.

This change corrects an inconsistency between controlled calculations and the results of the calculations presented in the UFSAR. The intent of the original statement is not changed, no design basis information is impacted, and no commitments are changed.

This change corrects an inconsistency between controlled calculations and the results of the calculations presented in the UFSAR. The intent of the original statement is not changed, no design basis information is impacted, and no commitments are changed. Since the proposed change accurately reflects the results of Nodalization studies for the reactor annulus, and does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves correcting the description of the 5 and 6-Node reactor annulus models study and the 7-Node incore instrumentation tunnel model study, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:
The above non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the recirculation spray system to perform its design function in the event of a DBA, nor is there any change in the likelihood that any credited equipment will fail to perform. The reported results for containment peak pressure, containment depressurization time, containment subatmospheric peak pressure, and doses for the control room and exclusion area boundary or low population zone are unchanged. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regards to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined to not represent an unreviewed safety question.

99-SE-OT-44

Description
Technical Specification Bases Change Request No. 368
UFSAR Change Request No. FN 99-056
Changes will revise the Technical Specification Bases Section 3/4.7.1.1, "Safety Valves" for the Main Steam Safety Valves (MSSVs) and will clarify UFSAR Section 10.3.1, "Main Steam System – Design Basis" to reflect that the design relief capacity and design of the valves are based upon the requirements of Section III of the ASME B&PV Code, 1968 Edition with Addenda through Winter 1970.

Summary
The Integrated Review Team's review of the North Anna Power Station Main Steam System identified that the applicable design code specified in the Technical Specifications Bases Section 3/4.7.1.1, "Safety Valves" for the Main Steam Safety Valves is incorrect. It was determined by the team that the design relief capacity of the MSSVs is based upon the requirements of Section III of the ASME B&PV Code, 1968 Edition with Addenda through Winter 1970 in lieu of the 1971 Edition of the code.

A review of the historical documentation identified that reference to the 1971 Edition of the code was made in the initial submittal of the Technical Specification Bases Section 3/4.7.1.1 to the NRC. However, the review also identified that the 1968 Edition of the code was referenced in the original Final Safety Analysis Report as well as the Updated Final Safety Analysis Report in Design Basis Section 10.3.1 for the Main Steam System. A review of the original Purchase Orders NA-105/1105 and Specification NAS-89-02, "Specification for Main Steam Safety Valves for North Anna Power Station" determined that an applicable year of the ASME code was not specified. The ASME Code form, "Form NVP-1 Manufacturer's Data Report for Nuclear Pumps or Valves" supplied by Crosby Valve and Gage Company with the initial purchase order states that the valves were procured to the requirements of ASME Section III, Class II, 1968 Edition with Addenda through Winter 1970. This is consistent with the results of the reviews performed by the corporate Mechanical Engineering group and by the Configuration Management Integrated Review Team as well as the resolution of Potential Problem Report 99-005.

<u>Safety Significance</u>
This correction to the Units1 and 2 Technical Specifications Bases and UFSAR Section 10.3.1 to specify the correct code edition for the Main Steam Safety Valves does not create an unreviewed safety question as described below:

- The Bases change does not increase probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report.

  Correcting the code edition specified in the UFSAR and the Bases for the Main Steam Safety Valves has no impact on the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the safety analysis report. An engineering review of the functional requirements for safety valves between the two editions of the code was performed whereby it was determined that they were the same.

- The Bases change does not create the possibility of an accident or malfunction of a different type than any evaluated previously in the safety analysis report.

  Correcting the code edition specified in the Bases for the Main Steam Safety Valves does not create the possibility of an accident or malfunction of a different type than any previously evaluated in the safety analysis report. An engineering review of the functional requirements for the safety valves between the two editions of the code was performed whereby it was determined that they were the same. This change will also clarify the edition of the code specified in the UFSAR.

- This Bases change does not result in a reduction of margin of safety as defined in the basis for any Technical Specifications.

Correcting the code edition specified in the UFSAR and the Bases for the Main Steam Safety Valves does not result in a reduction of the margin of safety. An engineering review of the functional requirements for the safety valves between the two editions of the code was performed whereby it was determined that they were the same. The margin of safety is not reduced since the change has no effect on any safety analysis assumptions.

99-SE-OT-45

Description

Reload Safety Evaluation (RSE) Technical Report NE-1210, Revision 0
Refueling and operation of North Anna Unit 2 Cycle 14
Incorporation of the following features described in Technical Report NE-1210, Rev. 0:

- Reconstituted fuel assembly 3A4, which has one solid stainless steel filler rod and eight high burnup ZIRLO rods
- Short poison stack (127.2-inch) BP rods
- Vibration suppression damping assemblies

Summary

A safety evaluation has been performed to determine whether an unreviewed safety question will result from the refueling and operation of North Anna Unit 2 Cycle 14. In this evaluation, reload cycle parameters have been calculated and compared to the existing safety analysis assumptions. These parameters have been shown to be either explicitly bounded, or accommodated by existing safety analysis margin and/or conservatism.

The impact of the following features of the reload have been accounted for in the appropriate evaluations performed for Cycle 14:

1. Fuel assembly 3A4, which has one solid stainless steel filler rod and eight high burnup ZIRLO rods.
2. BP rods utilizing a short poison stack of 127.2 inches.
3. Use of 29 vibration suppression damping assemblies (VSDAs) in 28 peripheral and the center core location fuel assemblies.
4. Cycle 14 burnup will not exceed 20,600 MWD/MTU for EOC13 burnup = 18,700 MWD/MTU, or 20,100 MWD/MTU for EOC13 burnup = 19,700 MWD/MTU, including a 50F RCS average temperature coastdown to 575.80F followed by a power coastdown. The total coastdown is approximately 2500 MWD/MTU past full power end of reactivity. Reduced Tavg coastdown operation was implemented in NAPS safety evaluation 99-SE-OT-26, Rev. 1. Cycle 14 is limited to a 50F coastdown. The maximum Tavg reduction is limited to the value specified in the cycle-specific reload safety evaluation. Operations verifies this limitation by procedure 2-OP-2.2C. A maximum FQ of 2.15 for EOC Tavg coastdown (2.19 for normal operation up to end of full power reactivity) as modified by K(z) is established.
5. Top nozzles on eight irradiated fuel assemblies will be replaced during the Cycle 13/14 refueling outage and those assemblies will be used during N2C14. The fuel assembly repair is documented in DCP 99-003, Field Change 1, and was approved by NAPS SNSOC on September 7, 1999. The use of new top nozzles on irradiated fuel assemblies has been evaluated and shown to be acceptable (see NE-1210, Rev. 0).

The following reload cycle parameters were found to be outside the range of the generic safety analysis input assumptions and therefore required specific evaluation:

I. The reload specific fuel rod FΔH census is not bounded by the reference limit for all values.
II. The maximum rod average burnup exceeds that assumed for the rod ejection accident.
III. The hot assembly average relative power distribution (RPD) exceeds the limit during coastdown operation.

In accordance with VEP-FRD-42 Rev 1-A, "Reload Nuclear Design Methodology," an evaluation was performed to determine the impact of the parameters on the currently applicable safety analyses.

I. Based on a known DNBR sensitivity to FΔH, a penalty has been assessed against retained DNBR margin to account for the reload fuel rod FΔH census not being bounded by the reference limit.

II. The rod ejection accident was reanalyzed with values for FQ and ejected rod worth that bound the N2C14/SU reload values to demonstrate adequate margin to the fuel melt criterion for a lead rod burnup of 73,000 MWd/MTU, greater than the expected peak rod burnup during Cycle 14.

III. The LBLOCA analysis was reviewed to assess the impact of the nonbounded hot assembly RPD during coastdown. The hot assembly RPD is accommodated without a penalty provided that the nominal full power Tavg coastdown does not exceed 50F, or a target Tavg of 575.80F.

The results of this evaluation can be summarized as follows:

1. No increase in the probability of occurrence or consequences of an accident will result from this core reload. The reload creates only incremental changes in the values of parameters previously shown to be significant in determining core response to known accidents. Since the currently applicable safety analyses remain bounding for North Anna Unit 2 Cycle 14, it is concluded that operation with the proposed reload core will neither increase the probability of occurrence nor the consequences of initiating events for any known accident.

2. The N2C14 reload includes reconstituted fuel assembly 3A4, which includes one solid stainless steel filler rod and eight high burnup ZIRLO rods, 127.2-inch poison stack (short) BP rods, and vibration suppression damping assemblies (VSDAs). These changes will not result in violation of currently applicable safety analysis limits; and their effects on system accident response are fully described by the parameters evaluated. Therefore, operation with this core does not create the possibility of an accident of a different type than any previously evaluated in the Safety Analysis Report.

3. The effects of reload parameter variations were accommodated within the conservatism of the assumptions used in the applicable safety analyses. These analyses have demonstrated that calculated results meet all design acceptance criteria as stated in the UFSAR. Therefore, the margin of safety is not reduced for North Anna Unit 2 Cycle 14 operation.

99-SE-OT-46

Description

North Anna UFSAR Change Request No. FN 99-021

UFSAR Change Request No. FN 99-021 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss North Anna's feedwater, condensate, steam generator blowdown, and condensate polishing systems. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's feedwater, condensate, steam generator blowdown, and condensate polishing systems.

Summary

The following editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any feedwater, condensate, steam generator blowdown, or condensate polishing system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub # 1

Revise Table 3.9-1 to correctly identify the check valve designator as "VCW-60X". The current Table 3.9-1 was originally generated in response to AEC COMMENT 3.9.2b as a listing of components within the SWEC scope of supply that would be considered ASME Class 2 and 3. The specific component listing affected by this proposed change is for the 16" feedwater isolation check valves. The mark number listed on Table 3.9-1 for these valves is "VGW-60X." This designation refers to a gate type valve (the "G" in the mark number) and has been applied to other gate valves within the same table. The valve, as indicated in the listing, is a check valve and should be designated "VCW-60X," which is also consistent with other check valves within the same table. This was confirmed to be the designator applied to the valve by review of historical revisions of the system flow diagram (FM 74 series of prints). The VGW-60X listing in UFSAR Table 3.9-1 for the feedwater check valve number is concluded to be an administrative error in the preparation of this table, and this change proposes to correct the valve number. There is no change proposed to the installed plant equipment as a result of this UFSAR change request. The historical plant drawings correctly identified the type of valve used in this location at the time this table was written into the UFSAR.

Change Item Sub # 5

Revise Section 10.4.3.2 to state that the chemical feed equipment is provided to ensure proper chemistry control of the secondary system and not just the steam system as currently written. UFSAR Section 10.4.3.2 describes the secondary system chemical additives and the primary objective of each. These include protecting the steam generators, steam piping, turbines, and condenser and feedwater systems. This level of detail is contained within the same paragraph as this recommended change and states "Secondary system chemical additives include ...." This proposed UFSAR change will remove misleading information and improve consistency within this section of the UFSAR.

Change Item Sub # 7

Revise Section 10.4.6.2 to state that the steam jet air ejector drains go to the turbine building sump and not to liquid waste. The steam jet air ejector design results in condensate being drained to the turbine building sump. The flow/valve operating numbers diagram for each unit shows the condensate draining to either "waste" or to the "floor drains." A walk down of the system supports these as being part of the same drain path to the Turbine Building Sump and that the reference to liquid waste is incorrect. Additionally, the ODCM lists the Turbine Building Sump as requiring a Batch Release Permit when the secondary coolant activity exceeds 1.0 E-5 μCi/ml. The original FSAR described the air ejector drains going to waste and FSAR Figure 10.4.1-1 labels the drains going to waste or to a floor drain. The first issue of the Updated FSAR, Revision 0, changed the description to state "...drained to the liquid waste system" and there is no explanation why this was reworded to state liquid waste. It is believed that the initial update effort attempted to clarify the statement and resulted in making it incorrect. This statement in the UFSAR has not been revised since Rev. 0 and the Integrated Review Team review efforts indicate there haven't been any changes to the system requiring a change to this statement. This is considered an editorial change to restore the UFSAR to the intent of the original wording and restoring accuracy to the discussion of the steam jet air ejectors.

Change Item Sub # 11
Revise Section 10.4.8.2 to identify the code edition for ANSI B31.1 as 1967. Specification for Piping, NAS-290, Section I, Piping Engineering and Design Instructions for NAPS identifies the applicable piping code for non-Q piping as ANSI B31.1.0-1967. Additionally, there was no ANSI B31.1 code edition issued in 1969. This is considered an editorial error in the UFSAR and has existed since the FSAR was originally written.

Change Item Sub # 12
Revise Section 10.4 by adding to the list of reference drawings the corresponding Unit 2 drawings. This is an administrative change intended to list the applicable Unit 2 reference drawings making the UFSAR more complete. Additionally, a Unit 1 Chemical Feed System drawing that contains part of the wet lay-up recirculation system for the steam generators is being added for reference.

Summary:
The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub # 2

Revise Section 5.5.2.2 to state that the steam generators have been provided with two 4 inch inspection ports, not a single opening, on the steam generator that provide access for visual inspection. The steam generator replacement design change packages for Unit 1 and 2, DCPs 90-13-1 and 93-011, respectively, implemented replacement of all three steam generator lower assemblies. The inspection port design feature, as described in Section 2.2.1.7 of the Engineering Review and Design documentation for each DCP stated "Two 4-inch inspection ports are located on the transition cone lower shell at an elevation slightly above the top tube support plate and aligned with the tubelane." The Technical Manual for the replacement steam generators for Unit 1 describes the inspection ports as being located 180 degrees apart. Unit 1 DCP, DC 90-13-1, contained UFSAR Change Request FN 93-037, which resulted in the current wording added to the UFSAR in Revision 23. Unit 2 DCP, DC 93-011, contained UFSAR Change Request FN 95-012, which resulted in the removal of unit specific information and credited the Revision 23 words as representing the description of the inspection ports for Unit 2. That change was implemented in UFSAR Revision 30. Each UFSAR change request failed to recognize the accurate description of the new inspection ports as described in the ER&D. Since the proposed UFSAR changes describe physical changes to the facility that have already been evaluated in the ER&D for the respective DCPs which are supported by Safety Evaluations 92-SE-MOD-054, Rev. 4 for Unit 1 and 94-SE-MOD-084, Rev. 0 for Unit 2, and there are no procedure changes required, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve any new physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 3

Revise Sections 9.2.3.2, 9.2.3.2.2, and 10.4.3.2 to simplify the description of the flash evaporator system operation. The facility has been modified over the years by the addition of reverse osmosis units to improve the ability to provide sufficient makeup water for the primary and secondary plant needs. UFSAR Section 9.2.3.2.2 states that the flash evaporator system has not been used since the reverse osmosis system was installed and Safety Evaluation 91-SE-OT-040 addressed the flash evaporator as not being used in daily plant operations and states that the equipment has been secured. UFSAR change request FN 91-31 revised the UFSAR by deleting reference to the day-to-day operation of the system. The operating practice has been to use the flash evaporator distillate pumps to transfer water from the condensate storage tanks to the primary grade water storage tanks. EWR 91-176 evaluated permanently abandoning the equipment and recommended certain modifications to address personnel safety and operational concerns. As a result, DCP 91-176-1, Flash Evaporator Abandonment - Reroute of Distillate Pump Recirc Line, modified the system to reroute the distillate pump recirculation piping from the flash evaporator to the condensate storage tank to eliminate the possibility of accidentally flooding the flash evaporator. This DCP also cut and capped the subject line to the flash evaporator. The EWR further evaluated the flash evaporator systems recognizing that the systems have not been used nor routinely maintained and as such have deteriorated to some degree. To place the flash evaporators back into service would require detailed inspection, evaluation and refurbishment of the evaporators and supporting systems and equipment. The UFSAR contains details of the operation of the evaporators and supporting systems even though the equipment is not currently capable of operation. Since the flash evaporator is no longer used and this DCP abandoned this portion of the flash evaporator system, the UFSAR is being revised to remove the detailed discussion of the operation of the flash operator and to describe the operation of the flash evaporator distillate pumps as previously evaluated. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility. The operation of the evaporator distillate pumps in transferring makeup water from the condensate storage tanks to the primary grade water storage tanks does not involve any safety related equipment and is incapable of initiating an accident since the boundaries of operation do not extend to any systems capable of causing a plant transient; additionally, the equipment is not involved in mitigating the consequences of an accident, therefore, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 4

Revise Section 10.1 to define the boundaries of the main air ejector discharge piping that is safety related. The current UFSAR description states the following system design features are safety related; "That portion of main air ejector discharge piping penetrating the reactor containment outward to the first isolation valve." Section 10.4.6.2 provides reference to controlled drawing 11715-FM-072A, Flow/Valve Operating Numbers Diagram, Auxiliary Steam & Air Removal System for information on the condenser air ejector vent. That drawing defines the Q2 safety related portion of the piping as that piping from the inside containment check valve to the second valve outside containment. This drawing and the text of Section 10.1 are not in agreement. This inconsistency has existed since the original FSAR was written. The UFSAR further states that all containment pipe penetrations are designed, built, and tested to the requirements of B31.7-1969, Class I or II and this statement has been validated as being accurate. This proposed UFSAR change will provide accuracy and consistency with design information related to the main air ejector discharge piping penetrating containment. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 6

Revise Section 10.4.4.3 to state that the condenser hotwell is capable of reducing the oxygen content of the condensate to less than 0.005 ppm under normal operating conditions. The basis for the current performance measure cited in the UFSAR is located in the General Requirements portion of the purchase specification, NAS-45, for Steam Surface Condenser Equipment. However, the specific requirements for the equipment are located in the main body of the specification, including the SERVICES AND EQUIPMENT FURNISHED BY SELLER section and STEAM SURFACE CONDENSER DATA sheet, and are stated as 0.005 ppm oxygen deaerating capability. This more restrictive performance requirement constitutes the design deaerating capability of the condenser equipment and is the appropriate parameter value to include in the UFSAR in order to meet the intent of the statement. This proposed change corrects an administrative error that has existed in the UFSAR since original issue, and is not a change in the equipment performance or operation of the equipment. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 8

Revise Section 10.4.6.2 by changing the normal blowdown rate of the high-capacity blowdown system from 67,500 lb/hr to 90,000 lb/hr. In order to improve the ability to control steam generator corrosion problems, there have been improvements made to the steam generator high-capacity blowdown system as well as to the systems supporting blowdown system operation. These improvements are intended to support continuous steam generator blowdown at higher flow rates. DCP 94-003, Steam Generator Blowdown System Upgrades, North Anna Unit 1 and DCP 94-015 Steam Generator Blowdown System Upgrades, North Anna Unit 2 documented the upgrade of the respective units high-capacity blowdown system to permit operation at the design capacity of approximately 100,000 lbs/hr (200 gpm at 60 degrees F), or 67 gpm per steam generator, if sufficient makeup water capacity was available. The makeup capacity at the time of the design change supported a continuous steam generator blowdown rate of approximately 45 gpm per steam generator with both units operating. UFSAR Change Request FN 95-009 was prepared to document the resulting UFSAR changes from the blowdown system upgrades, including the increase in the normal blowdown rate to 67,500 lb/hr and was added to the UFSAR in Revision 34.

To address the qualifying condition of DCPs 94-003 and 94-015 related to having sufficient makeup capacity to support operation of the blowdown system at it's design capacity, DCP 95-011, Reverse Osmosis System Upgrade, North Anna Units 1 and 2, upgraded the system to provide a higher secondary makeup water flow rate. Physical changes included increasing normal and peak capacities of the existing reverse osmosis system by replacing the electrodialysis reversal (EDR) membrane stacks with electrodeionization (EDI) units and installing a dedicated vertical turbine pump sized to supply an instantaneous peak raw water flow of 1000 gpm to the reverse osmosis system. UFSAR Change Request FN 95-059 was prepared to document the increase in the feed rate to the reverse osmosis system and the increase in the continuous and peak supply of makeup water to the secondary system.

Upgrades of the steam generator high-capacity blowdown system and the reverse osmosis system have resulted in the ability to operate the high-capacity blowdown system much closer to it's design capacity of 100,000 lbs/hr (67 gpm per steam generator). Following completion of the upgrades, the system was tested in accordance with the Final Design Test Procedure, D-NAT-94-015-2-1, and the high-capacity blowdown rates approaching 67 gpm per steam generator were recorded. This testing and operation of the system were within the scope of the design capabilities of the system and as such evaluated by Safety Evaluations 95-SE-MOD-44 and 95-SE-MOD-81 prepared for the respective units DCPs. Operating experience supports revising the UFSAR to reflect this increase in the current normal blowdown rate of the steam generator high-capacity blowdown system. Current operating procedures (i.e., 1-OP-32.3) describe system operation at flow rates up to design values. Implementation of this proposed UFSAR change will result in the UFSAR containing a description of the steam generator high-capacity blowdown system that is consistent with, and representative of, current design and operating experience.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced

Change Item Sub # 9

Revise Section 10.4.6.3 to describe the automatic closing of the steam generator blowdown valves as two valves close on an auxiliary feedwater pump auto start signal as opposed to when any auxiliary feedwater pump is started. Based on a review of the drawings, redundant signals are generated to initiate starting the auxiliary feedwater system and closing the steam generator blowdown trip valves. These signals and components are train related. This original design feature assures the design function of minimum safeguards actuation. An auxiliary feedwater system auto start signal (two trains) will cause two of the three series isolation trip valves to close automatically. The current UFSAR statement has existed since the FSAR was initially written and is misleading in that it states that two of the three blowdown trip valves will close when any auxiliary feedwater pump is started when in fact the logic was for two valves to close on an auxiliary feedwater pump auto start signal. The proposed UFSAR change will replace misleading details with a more accurate description.

The phrase "or by AMSAC activation" in the second sentence was inappropriately included as an "administrative change" in UFSAR Change Request FN 92-066. This UFSAR change is more than administrative in nature and sufficient technical basis is needed. UFSAR Change Request FN 92-066A was initiated to document the completion of the technical review in support of the proposed changes. DCP 87-11-1 performed the ATWS Mitigation System Modification for North Anna Unit 1. UFSAR Change Request FN 89-14 was processed as part of the DCP (Appendix 8.3) which consisted of reviewing the Key Word Index and Table of Contents. The change to Section 10.4.6.3 (i.e., that two of the blowdown trip valves will close on AMSAC activation) was not included. The DCP did request a change to UFSAR Section 7.2.2.3.5 to state that the ATWS Mitigation System Actuation Circuitry would isolate blowdown lines. Throughout the Engineering Review and Safety Analysis section of DCP 87-11-1, there are statements that AMSAC provides a direct trip of steam generator blowdown valves.

A review of DCP 87-11-1 and Station Drawings 11715-ESK-6MA Rev. 10, 11715-ESK-6MB Rev. 11 and 11715-FE-21AL Rev. 1 verified that activation of both Trains of AMSAC will result in the closing of two of the three series trip valves in each of the blowdown paths. DCP 87-12-2 provided the AMSAC modifications for Unit 2, and review of the following drawings confirmed that two of these valves close on activation of both Trains of AMSAC: 12050-ESK-6MA Rev. 16, 12050-ESK-6MB Rev. 13 and 12050-FE-21AL Rev. 0.

It is concluded that the administrative change to UFSAR Section 10.4.6.3 was an oversight of the DCP. The safety evaluation prepared for this proposed UFSAR change identifies the technical basis in support of UFSAR Change Request FN 92-066A to revise UFSAR Section 10.4.6.3 as noted and will provide accuracy consistent with the design description contained in the Engineering Review and Safety Analysis section of the DCP. The Unreviewed Safety Question Evaluation is included in Section 7.0 of the Engineering Review and Safety Analysis for each Units DCPs. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 10

Revise Section 10.4.8.2 to describe the ability to operate powdered-resin filter demineralizers without a resin precoat. It is suspected that the powdered-resin demineralizer filters had permitted resin intrusion events where resin has slipped into the condensate stream. This represents an undesirable condition since the resin could eventually be carried to the steam generators where it would collect and would then be subject to breaking down and creating chemistry imbalances with the potential to damage the steam generators. DCP 95-002, Condensate Polishing System Upgrade, Unit 2, modified all five powdered-resin filter demineralizers to allow operation either with or without a resin precoat. DCP 96-016, Condensate Polishing System Upgrade, Unit 1, modified all five powdered-resin filter demineralizers in the same manner. With this facility change the system can be operated without the resin precoat and then function as a mechanical filter for the removal of suspended solids (i.e., iron and wear products). Operation in this configuration was specifically discussed in the Engineering Review and Design and supporting safety evaluations (97-SE-MOD-01 for Unit 1 and 96-SE-MOD-33, Rev. 1, for Unit 2). This proposed change to the UFSAR will describe the ability to operate powdered-resin filter demineralizers either with or without a resin precoat consistent with implemented design changes. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 13

Change condensate pump impeller material from "A48" to "B143". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The details listed for the main condensate pumps include material of construction for the pump casing and the impeller. The response to comment 10.1 listed the impeller material as ASTM B143 and for the pump casing as A48, which is consistent with the equipment purchase specification, NAS-45. However, the impeller material and the pump casing material listed in Table 10.4-2 in the UFSAR Rev. 0 is A48, as it is in the current Table 10.4-2. It is concluded that the error was made in the transcription of the comment 10.1 response to the UFSAR. The change from A48 to B143 as the pump impeller material identification is considered a correction to the Table 10.4-2 information. The ASTM B143 material is the original design material for the impeller and was previously determined to be acceptable for this application. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 14

Delete the entire table entry titled "Fifth-point heater drain cooler (CN-DC-1A and B)". This UFSAR Table 10.4-2 entry is redundant to the information in the entry titled "Fifth-point external drain cooler (CN-DC-11)" that appears later in the table. The information in the later entry was added to the UFSAR by change request FN 87-47 and constitutes the correct design information for the drain coolers following replacement by DCPs 86-04 and 86-05 (except for the mark numbers which are being corrected by this UFSAR Change Request). The duplicate entry for the drain coolers has created an administrative error in the table in that the information exists twice for the same component. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 15

Delete the parenthetical (NOT USED) for the flash evaporator distillate pumps. The reverse osmosis system was added to the facility as Design Change 89-31-3. That DCP contained changes needed for the UFSAR as Appendix 8-5 as well as to the NCRODP. The changes supported implementation of the reverse osmosis system and recognized the ability to continue to use flash evaporator equipment. EWR 91-178 evaluated the flash evaporator system and recognized the use of the evaporator distillate pumps to transfer condensate from the condensate storage tank to the primary grade water tank. Memo dated March 28, 1990 documented this operational practice. This evaluation resulted in DCP 91-176-1, Flash Evaporator Abandonment - Reroute of Distillate Pump Recirc Line. The resulting modification changed the piping configuration to eliminate an overpressure concern associated with the continued operation of the distillate pump. UFSAR Change Request FN 92-37 implemented the changes identified in Appendix 8-5 of DCP 89-31-3 and expanded the scope of changes to include marking the flash evaporator distillate pumps as "NOT USED." This proposed UFSAR change will remove the parenthetical (NOT USED) and restore the UFSAR as accurately representing the operation of the facility. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 16

Change shell material to "SA-285-C". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The intent of the table is to list design information related to the listed components.

The third point feedwater heaters were replaced under DCPs 87-14, -15, and -16 and UFSAR Change Request FN 91-04 was prepared to revise the UFSAR Table 10.4-2 to reflect the new feedwater heater design information. The feedwater heater shell material designation was incorrectly changed in the table to the SA516-70 material specification. This information was in the initial UFSAR change request, however, there was a change in Specification NAS-2070 as part of DCP 87-14-1 that was not recognized when the UFSAR change request was processed. The correct material specification for the third point feedwater heater shell is SA-285-C as indicated in NAS-2070, on the heater data sheet and the design report. This change to the description of the material specification in the table is made to correct an administrative error that was made when the UFSAR change request was generated for the new feedwater heaters. There is no change in feedwater heater material of construction, and the material specification SA-285-C was evaluated and found acceptable by the heater replacement DCPs and safety analysis. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 17

Change shell material to "SA-285-C". Identify the tubesheet material listed in the table as applicable to the 'A' train feedwater heater and add the material description for the 'B' train feedwater heater as "SA266-CL2 w/304SS overlay (B)". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The intent of the table is to list design information related to the listed components.

The fourth point feedwater heaters were replaced under DCPs 87-13 and -16 and UFSAR Change Request FN 91-04 was prepared to revise the UFSAR Table 10.4-2 to reflect the new feedwater heater design information. The feedwater heater shell material designation was incorrectly changed in the table to SA516-70 material specification. The correct material specification for the fourth point feedwater heater shell is SA-285-C as indicated on the heater data sheet and the design report. Additionally, the tube sheet material specification for the 'B' train heaters was not added to the table. The material specification for the 'B' train fourth point feedwater heater is SA266-CL2 and includes a stainless steel overlay as indicated on the heater data sheet and in the design report. The current information in the table was in the initial UFSAR change request, however, there was a change to Specification NAS-2070 as part of the DCPs that was not recognized when the UFSAR change request was processed. This information is contained in Specification NAS-2070 and is referenced in the DCP as the specification that contains the technical and performance data. These changes to the description of the material specifications in the table are made to correct administrative errors that were made when the UFSAR change request was generated for the new feedwater heaters. There is no change in feedwater heater material of construction, and the material specification SA-285-C for the shell and SA266-CL2 for the tubesheet was evaluated and found acceptable by the heater replacement DCPs and safety analysis. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 18

Change the stated heat exchanger duty to "420,400,000 Btu/hr". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The intent of the table is to list design information related to the listed components. As such, the parameters listed may not coincide with the actual plant operating data for each of the components. Plant thermal performance data is included in the heat balance diagrams, UFSAR Figures 10.1-1 and 10.1-2.

The fifth point feedwater heater tube bundles were replaced under DCPs 86-04 and 86-05 and UFSAR Change Request FN 87-47 was prepared to revise the UFSAR Table 10.4-2 to reflect the new feedwater heater design information. Subsequently, UFSAR Change Request FN 91-04 was prepared to update the UFSAR with new information related to the replacement of the first through fourth point feedwater heaters, and revised the heat duty for the fifth point heaters. The basis for the heat duty change given in FN 91-04 was to reflect changes in thermal performance of the feedwater heaters after the feedwater heater replacement project was complete. As stated above, the intent of this table is to list design data for the components and the design heat duty may not reflect actual thermal performance of the units. The change made by FN 91-04, therefore, did not meet the intent of the table and the heat duty for the fifth point feedwater heaters is being changed to reflect the design heat duty value. There is no change in feedwater heater design, capacity, or operation associated with this change. This change corrects an administrative error made by FN 91-04. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 19

Change the description of the tube material to "SA249 TP304". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The intent of the table is to list design information related to the listed components.

The feedwater heater replacement project generated UFSAR Change Request FN 91-04 in order to update the information in Table 10.4-2 to reflect the new feedwater heaters. FN 91-04 also revised the material specification for the sixth point heater tubes to SA688-TP304 even though the sixth point heaters were not affected by the feedwater heater replacement project. The tube material specification for these heaters is actually SA249-TP304 based on the original ASME Form U-1, Manufacturer's Data Report. The change made by FN 91-04 was incorrect and this change corrects the tube material specification to SA249 TP304. There is no change in feedwater heater material of construction, and the material specification SA249 TP304 for the heater tubes is the original material. The tube material specification was changed incorrectly by FN 91-04. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 20

Change the component mark number to "(CN-DC-1A, B)" and change the tube material to "SA688 TP304". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The intent of the table is to list design information related to the listed components.

The fifth point feedwater heater drain coolers were replaced by DCPs 86-04 and 86-05 and UFSAR Change Request FN 87-47 was generated to revise the Table 10.4-2 information for the drain coolers. FN 87-47 added this entire table entry related to the drain coolers (the change request did not recognize the existence of the drain cooler information located earlier in the table). The change requested by FN 87-47 was incorrectly typed into the UFSAR and resulted in an error in the drain cooler mark number. The mark number is changed to "CN-DC-1A, B" by this change request. Additionally, the material specification listed in the table for the drain cooler tubes is added by this change request for consistency with the level of detail given for the other feedwater heaters in the table. The material specification SA688 TP304 is the tube material as given on the data sheet for the drain coolers. There is no change in drain cooler tubes material of construction, and the material specification SA688 TP304 was evaluated and found acceptable by the drain cooler replacement DCPs and safety analysis. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 21

Revise Table 10.4-4 to account for assumptions in the cooldown analyses related to the volume of the main feedwater purge volume and temperature and the use of sensible heat. Additionally, correct two typographical errors in footnote b. Regarding the main feedwater purge volume. The cooldown calculations of record do not specifically account for the main feedwater purge volume. This is acceptable since only a small amount of total purge volume would need to be boiled off to reduce the overall purge volume temperature to the final temperature. Although this would have the effect of reducing the water volume remaining in the steam generator, the impact would be minimal and the total water volume remaining in the steam generator secondary still represents a significant heat sink when 350 F RCS temperature is reached. Further, it should be noted that Calculation SM-1152, NAPS Emergency Condensate Storage Tank Heat Removal Capacity Using TS Minimum Volume, contains several conservatisms that have been identified but have not yet been quantified to provide additional margin in that calculation. Thus, the purge volume entry in the Cooldown transient list should be changed to 'NA' to be consistent with the cooldown calculations of record.

Regarding the sensible heat assumptions used in the analyses. Of the transients that are listed in this table, the Cooldown transient is the only one that is not performed using the RETRAN code to perform the transient analysis of the RCS and secondary system. The cooldown transient has been performed as a simple heat balance calculation. The sensible heat sources that are currently listed in footnote 'b' under the cooldown transient (sensible heat) are the available sources of sensible heat for all of the transients when considering the RCS and main feedwater and main steam systems. The modeling for each of these transients does not necessarily include each and every source of sensible heat. For instance, the RETRAN model conservatively does not include the mass of the steam generator shell. Since this metal would be at a given initial condition, it will either act as a heat sink or a heat source during a transient that changes the secondary pressure and thus temperature. If the transient is a heatup transient, the SG shell temperature will lag the secondary water temperature and act as a heat sink which would tend to slow the transient response and make the results less limiting. For the shorter term cooldown transients, the metal mass becomes a heat source and as such slows down the cooling process and so makes the results less limiting. Therefore, the transient models do not include the steam generator shell mass on the secondary side as it makes the transient analysis results more conservative. The calculation of the cooldown heat balance, on the other hand, does include that mass because of its overall impact on that calculation. It is therefore appropriate to preface this list of sources of sensible heat with a statement that acknowledges that the sources of sensible heat are conservatively determined for each transient.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the UFSAR changes only involve changing the description of the cooldown transient assumptions and not a change to the transient analysis methodology and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 22

Revise Figure 10.4-4 by removing one of the parallel check valves shown in each of the feedwater pump recirculation lines between the steam generator feedwater pumps and the feedwater recirculation valves. DCP 96-234 was written to authorize piping and component replacements in Unit 1 secondary systems due to flow accelerated corrosion (FAC) degradation. The replacements included piping and valves, and included changes in materials of construction, changes in dimensional characteristics and replacements in kind. The modifications were made in order to increase the piping and component resistance to FAC degradation.

The configuration of the Unit 1 feedwater pump recirculation lines was changed by DCP 96-234 by removing the two parallel 8" check valves and installing a single 10" check valve in its place in each of three recirculation lines. This configuration is consistent with the Unit 2 feedwater pump recirculation piping configuration. The associated Unit 1 piping and the valve material of construction was also changed from carbon steel to 2 1/4% chromium/1% molybdenum material. These changes are described in the DCP 96-234 Engineering Review and Design section, and the Programs Review included a review of the UFSAR. The DCP review concluded that, although the UFSAR Figure 10.4-8 (Feedwater) was affected, a UFSAR Change was not required since the figure would be updated by the Drawing Update Group. The current UFSAR figure for the feedwater system is a simplified diagram, Figure 10.4-4, and the parallel check valve configuration is shown.

The Unit 1 feedwater pump recirculation piping and valves configuration change implemented by DCP 96-234 results in a change to UFSAR Figure 10.4-4, Feedwater System. This change is acceptable since it will improve valve reliability and reduce service degradation due to the effects of FAC. The modified configuration has been reviewed to ensure design requirements for valve pressure/temperature rating, fluid flow characteristics, and piping system structural support are met. Additionally, this configuration is currently part of the Unit 2 feedwater pump recirculation piping system. The proposed change involves physical change to the facility that was evaluated by DCP 96-234, Request for Engineering Assistance 96-129, Calculation 11715-X2-50, and ET No.CEM-97-0024, Rev. 0. These reviews concluded that there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Based on the review performed for DCP 96-234, the change in configuration of the feedwater pump recirculation line does not create the possibility of an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected by this change, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #23

Revise Section 10.4.6.3 to improve readability and remove potentially misleading details regarding the discussion of the air ejector trip valves, the steam generator blowdown trip valves, and the steam supply to the air ejectors. Section 10.4.6.3 provides the "Design Evaluation" for the Secondary Vents and Drain Systems. This discussion provides details of component response to specific events to demonstrate satisfying design requirements. Each of the items is discussed separately.

1) Replace the term "diversion" with "trip." The steam jet air ejectors take suction from the air suction headers leading from the condensers and discharge to the atmosphere. This discharge flow path is diverted to the reactor containment if the radiation monitoring system detects radioactivity in the discharge stream. A review of the instrument loop drawings shows the two valves involved are interlocked to assure only one valve is opened at a time. These valves are referred to as "trip" valves in procedures and in the instrument loop diagrams. Changing the terminology from "diversion" to "trip" will result in common terminology existing between the plant documents and the UFSAR when describing these valves.

2) Change the reference to the diversion valves to a singular trip valve and focus the statement on preventing the possible release of radioactive contaminants to the atmosphere. Air ejector air discharge trip valve SV-TV-102-2 is normally open and is in the flow path to the ventilation vent releasing to the atmosphere. Air ejector air discharge trip valve SV-TV-102-1 is normally closed and is in the flow path to the containment. These two valves are interlocked to assure only one valve is opened at a time. Revising the statement to indicate one valve fails closed versus two valves failing closed provides a consistent explanation of valve operation as it relates to the balance of the statement regarding preventing possible radioactive contaminants from reaching the atmosphere. The addition of the ventilation vent release point further supports the design description since only one valve is in the flow path to the atmosphere.

3) State that the air-operated shutoff valve in the steam supply line to the air ejectors "fail" closed as opposed to simply stating that they close. A review of the instrument loop diagrams shows the air-operated shutoff valves in the steam supplies to the air ejector will fail closed upon loss of power or air. This is considered a clarifying change to restate the design function in terms that are consistent within the paragraph.

4) Revising the sentence that states the "diversion valve leading to the containment" to read as the "trip valves leading to the containment." The use of the word "diversion" is not defined in the UFSAR although it may be assumed that the diversion valve in this discussion would be the trip valve, SV-TV-102-1, that is in the flow path to the containment. This valve receives a containment isolation signal and is described as a containment isolation valve in Section 6.2.4, Table 6.2-37. Additionally, trip valve SV-TV-103 is in series with SV-TV-102-1 and also receives a containment isolation signal and is described as a containment isolation valve, however, only SV-TV-103 is Type C tested as described in the Technical Requirements Manual. The containment isolation system discussion in Section 6.2.4.2 states that additional automatic valves are provided for the air ejector vent. The change to this UFSAR statement, to include the terminology "trips valves" more accurately describes the actual configuration and is consistent with other UFSAR discussions.

5) Clarify that the three blowdown trip valves in the discussion are those associated with any one steam generator, combining related UFSAR details regarding the valves description into a single sentence, and adding consistency between Sections 10.4.6.3 and 10.4.6.5 regarding the number of blowdown trip valves that function as containment isolation trip valves. The addition of "for each steam generator" makes it clear what three blowdown trip valves are being discussed and that two of these three valves are part of the containment isolation system. Without this clarification, the sentence is potentially confusing since there are a total of nine valves labeled as steam generator blowdown valves and signals for containment isolation and blowdown excess flow rate for valve closure are mixed between these nine valves. Revising Section 10.4.6.5 to state that the steam generator blowdown system includes two containment isolation valves versus three adds consistency with Sections 10.4.6.3 and 6.2.4, Containment Isolation System. The design

information for the steam generator blowdown system is outlined in Table 6.2-37 and lists two containment isolation blowdown valves, one inside and one outside containment, as satisfying 10 CFR 50, Appendix A, General Design Criteria 57. This information in this UFSAR table has been validated as being accurate. The UFSAR statement that the steam generator blowdown system includes three containment isolation valves per steam generator was added to the UFSAR in the initial Updated FSAR, UFSAR Rev. 0. A facility change, DCP 78-57, to install circuitry to prevent high flow trips on the steam generator lines during initial pressurization contained a write up in the Final Design Description that included this statement. The FSAR initial update review included a review of this DCP that resulted in the insertion of this entire DCP description into the Updated FSAR. The DCP did not change the containment isolation function of the existing steam generator blowdown valves and did not add a containment isolation signal to trip valve(s) TV-BD-100G, (H, J), therefore, the system design for two steam generator blowdown trip valves to function as containment isolation valves was not affected.

These changes are being made to enhance clarity and readability and remove potentially misleading information regarding the design of the secondary system vents and drains. The changes in terminology and descriptive statements do not affect system function. The recognition that two trip valves are in the air ejector air discharge line flow path to the containment instead of one valve more completely describes the as built, as designed, facility. The revision to the statement that the steam generator blowdown system includes two containment isolation trip valves versus three corrects misleading information. The design function and the component response described in this section of the containment isolation system and steam generator blowdown system are not affected as a result of these proposed UFSAR changes. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #24

Revise Section 10.4.6.5 to specifically identify the blowdown trip valves that are push button operated, from the main control room, are the containment isolation blowdown trip valves. This discussion in Section 10.4.6.5 states that push buttons are provided in the main control room for opening and closing certain valves. The blowdown trip valves are push button operated, but only two of three of these valves, per steam generator, have their push buttons located in the main control room. These two valves are the containment isolation blowdown trip valves. The remaining blowdown trip valve(s) push button(s), TV-BD-100G, (H, J), are located in the auxiliary building penetration area. This change revises potentially misleading information by specifying which blowdown trip valves have push buttons in the main control room. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-46

Description

North Anna UFSAR Change Request No. FN 99-021

UFSAR Change Request No. FN 99-021 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss North Anna's feedwater, condensate, steam generator blowdown, and condensate polishing systems. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's feedwater, condensate, steam generator blowdown, and condensate polishing systems.

Summary

The following editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any feedwater, condensate, steam generator blowdown, or condensate polishing system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub # 1

Revise Table 3.9-1 to correctly identify the check valve designator as "VCW-60X". The current Table 3.9-1 was originally generated in response to AEC COMMENT 3.9.2b as a listing of components within the SWEC scope of supply that would be considered ASME Class 2 and 3. The specific component listing affected by this proposed change is for the 16" feedwater isolation check valves. The mark number listed on Table 3.9-1 for these valves is "VGW-60X." This designation refers to a gate type valve (the "G" in the mark number) and has been applied to other gate valves within the same table. The valve, as indicated in the listing, is a check valve and should be designated "VCW-60X," which is also consistent with other check valves within the same table. This was confirmed to be the designator applied to the valve by review of historical revisions of the system flow diagram (FM 74 series of prints). The VGW-60X listing in UFSAR Table 3.9-1 for the feedwater check valve number is concluded to be an administrative error in the preparation of this table, and this change proposes to correct the valve number. There is no change proposed to the installed plant equipment as a result of this UFSAR change request. The historical plant drawings correctly identified the type of valve used in this location at the time this table was written into the UFSAR.

Change Item Sub # 5

Revise Section 10.4.3.2 to state that the chemical feed equipment is provided to ensure proper chemistry control of the secondary system and not just the steam system as currently written. UFSAR Section 10.4.3.2 describes the secondary system chemical additives and the primary objective of each. These include protecting the steam generators, steam piping, turbines, and condenser and feedwater systems. This level of detail is contained within the same paragraph as this recommended change and states "Secondary system chemical additives include ...." This proposed UFSAR change will remove misleading information and improve consistency within this section of the UFSAR.

Change Item Sub # 7

Revise Section 10.4.6.2 to state that the steam jet air ejector drains go to the turbine building sump and not to liquid waste. The steam jet air ejector design results in condensate being drained to the turbine building sump. The flow/valve operating numbers diagram for each unit shows the condensate draining to either "waste" or to the "floor drains." A walk down of the system supports these as being part of the same drain path to the Turbine Building Sump and that the reference to liquid waste is incorrect. Additionally, the ODCM lists the Turbine Building Sump as requiring a Batch Release Permit when the secondary coolant activity exceeds 1.0 E-5 μCi/ml. The original FSAR described the air ejector drains going to waste and FSAR Figure 10.4.1-1 labels the drains going to waste or to a floor drain. The first issue of the Updated FSAR, Revision 0, changed the description to state "...drained to the liquid waste system" and there is no explanation why this was reworded to state liquid waste. It is believed that the initial update effort attempted to clarify the statement and resulted in making it incorrect. This statement in the UFSAR has not been revised since Rev. 0 and the Integrated Review Team review efforts indicate there haven't been any changes to the system requiring a change to this statement. This is considered an editorial change to restore the UFSAR to the intent of the original wording and restoring accuracy to the discussion of the steam jet air ejectors.

Change Item Sub # 11
Revise Section 10.4.8.2 to identify the code edition for ANSI B31.1 as 1967. Specification for Piping, NAS-290, Section I, Piping Engineering and Design Instructions for NAPS identifies the applicable piping code for non-Q piping as ANSI B31.1.0-1967. Additionally, there was no ANSI B31.1 code edition issued in 1969. This is considered an editorial error in the UFSAR and has existed since the FSAR was originally written.

Change Item Sub # 12
Revise Section 10.4 by adding to the list of reference drawings the corresponding Unit 2 drawings. This is an administrative change intended to list the applicable Unit 2 reference drawings making the UFSAR more complete. Additionally, a Unit 1 Chemical Feed System drawing that contains part of the wet lay-up recirculation system for the steam generators is being added for reference.

Summary:
The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub # 2

Revise Section 5.5.2.2 to state that the steam generators have been provided with two 4 inch inspection ports, not a single opening, on the steam generator that provide access for visual inspection. The steam generator replacement design change packages for Unit 1 and 2, DCPs 90-13-1 and 93-011, respectively, implemented replacement of all three steam generator lower assemblies. The inspection port design feature, as described in Section 2.2.1.7 of the Engineering Review and Design documentation for each DCP stated "Two 4-inch inspection ports are located on the transition cone lower shell at an elevation slightly above the top tube support plate and aligned with the tubelane." The Technical Manual for the replacement steam generators for Unit 1 describes the inspection ports as being located 180 degrees apart. Unit 1 DCP, DC 90-13-1, contained UFSAR Change Request FN 93-037, which resulted in the current wording added to the UFSAR in Revision 23. Unit 2 DCP, DC 93-011, contained UFSAR Change Request FN 95-012, which resulted in the removal of unit specific information and credited the Revision 23 words as representing the description of the inspection ports for Unit 2. That change was implemented in UFSAR Revision 30. Each UFSAR change request failed to recognize the accurate description of the new inspection ports as described in the ER&D. Since the proposed UFSAR changes describe physical changes to the facility that have already been evaluated in the ER&D for the respective DCPs which are supported by Safety Evaluations 92-SE-MOD-054, Rev. 4 for Unit 1 and 94-SE-MOD-084, Rev. 0 for Unit 2, and there are no procedure changes required, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve any new physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 3
Revise Sections 9.2.3.2, 9.2.3.2.2, and 10.4.3.2 to simplify the description of the flash evaporator system operation. The facility has been modified over the years by the addition of reverse osmosis units to improve the ability to provide sufficient makeup water for the primary and secondary plant needs. UFSAR Section 9.2.3.2.2 states that the flash evaporator system has not been used since the reverse osmosis system was installed and Safety Evaluation 91-SE-OT-040 addressed the flash evaporator as not being used in daily plant operations and states that the equipment has been secured. UFSAR change request FN 91-31 revised the UFSAR by deleting reference to the day-to-day operation of the system. The operating practice has been to use the flash evaporator distillate pumps to transfer water from the condensate storage tanks to the primary grade water storage tanks. EWR 91-176 evaluated permanently abandoning the equipment and recommended certain modifications to address personnel safety and operational concerns. As a result, DCP 91-176-1, Flash Evaporator Abandonment - Reroute of Distillate Pump Recirc Line, modified the system to reroute the distillate pump recirculation piping from the flash evaporator to the condensate storage tank to eliminate the possibility of accidentally flooding the flash evaporator. This DCP also cut and capped the subject line to the flash evaporator. The EWR further evaluated the flash evaporator systems recognizing that the systems have not been used nor routinely maintained and as such have deteriorated to some degree. To place the flash evaporators back into service would require detailed inspection, evaluation and refurbishment of the evaporators and supporting systems and equipment. The UFSAR contains details of the operation of the evaporators and supporting systems even though the equipment is not currently capable of operation. Since the flash evaporator is no longer used and this DCP abandoned this portion of the flash evaporator system, the UFSAR is being revised to remove the detailed discussion of the operation of the flash operator and to describe the operation of the flash evaporator distillate pumps as previously evaluated. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility. The operation of the evaporator distillate pumps in transferring makeup water from the condensate storage tanks to the primary grade water storage tanks does not involve any safety related equipment and is incapable of initiating an accident since the boundaries of operation do not extend to any systems capable of causing a plant transient; additionally, the equipment is not involved in mitigating the consequences of an accident, therefore, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 4

Revise Section 10.1 to define the boundaries of the main air ejector discharge piping that is safety related. The current UFSAR description states the following system design features are safety related; "That portion of main air ejector discharge piping penetrating the reactor containment outward to the first isolation valve." Section 10.4.6.2 provides reference to controlled drawing 11715-FM-072A, Flow/Valve Operating Numbers Diagram, Auxiliary Steam & Air Removal System for information on the condenser air ejector vent. That drawing defines the Q2 safety related portion of the piping as that piping from the inside containment check valve to the second valve outside containment. This drawing and the text of Section 10.1 are not in agreement. This inconsistency has existed since the original FSAR was written. The UFSAR further states that all containment pipe penetrations are designed, built, and tested to the requirements of B31.7-1969, Class I or II and this statement has been validated as being accurate. This proposed UFSAR change will provide accuracy and consistency with design information related to the main air ejector discharge piping penetrating containment. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 6

Revise Section 10.4.4.3 to state that the condenser hotwell is capable of reducing the oxygen content of the condensate to less than 0.005 ppm under normal operating conditions. The basis for the current performance measure cited in the UFSAR is located in the General Requirements portion of the purchase specification, NAS-45, for Steam Surface Condenser Equipment. However, the specific requirements for the equipment are located in the main body of the specification, including the SERVICES AND EQUIPMENT FURNISHED BY SELLER section and STEAM SURFACE CONDENSER DATA sheet, and are stated as 0.005 ppm oxygen deaerating capability. This more restrictive performance requirement constitutes the design deaerating capability of the condenser equipment and is the appropriate parameter value to include in the UFSAR in order to meet the intent of the statement. This proposed change corrects an administrative error that has existed in the UFSAR since original issue, and is not a change in the equipment performance or operation of the equipment. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 8

Revise Section 10.4.6.2 by changing the normal blowdown rate of the high-capacity blowdown system from 67,500 lb/hr to 90,000 lb/hr. In order to improve the ability to control steam generator corrosion problems, there have been improvements made to the steam generator high-capacity blowdown system as well as to the systems supporting blowdown system operation. These improvements are intended to support continuous steam generator blowdown at higher flow rates. DCP 94-003, Steam Generator Blowdown System Upgrades, North Anna Unit 1 and DCP 94-015 Steam Generator Blowdown System Upgrades, North Anna Unit 2 documented the upgrade of the respective units high-capacity blowdown system to permit operation at the design capacity of approximately 100,000 lbs/hr (200 gpm at 60 degrees F), or 67 gpm per steam generator, if sufficient makeup water capacity was available. The makeup capacity at the time of the design change supported a continuous steam generator blowdown rate of approximately 45 gpm per steam generator with both units operating. UFSAR Change Request FN 95-009 was prepared to document the resulting UFSAR changes from the blowdown system upgrades, including the increase in the normal blowdown rate to 67,500 lb/hr and was added to the UFSAR in Revision 34.

To address the qualifying condition of DCPs 94-003 and 94-015 related to having sufficient makeup capacity to support operation of the blowdown system at it's design capacity, DCP 95-011, Reverse Osmosis System Upgrade, North Anna Units 1 and 2, upgraded the system to provide a higher secondary makeup water flow rate. Physical changes included increasing normal and peak capacities of the existing reverse osmosis system by replacing the electrodialysis reversal (EDR) membrane stacks with electrodeionization (EDI) units and installing a dedicated vertical turbine pump sized to supply an instantaneous peak raw water flow of 1000 gpm to the reverse osmosis system. UFSAR Change Request FN 95-059 was prepared to document the increase in the feed rate to the reverse osmosis system and the increase in the continuous and peak supply of makeup water to the secondary system.

Upgrades of the steam generator high-capacity blowdown system and the reverse osmosis system have resulted in the ability to operate the high-capacity blowdown system much closer to it's design capacity of 100,000 lbs/hr (67 gpm per steam generator). Following completion of the upgrades, the system was tested in accordance with the Final Design Test Procedure, D-NAT-94-015-2-1, and the high-capacity blowdown rates approaching 67 gpm per steam generator were recorded. This testing and operation of the system were within the scope of the design capabilities of the system and as such evaluated by Safety Evaluations 95-SE-MOD-44 and 95-SE-MOD-81 prepared for the respective units DCPs. Operating experience supports revising the UFSAR to reflect this increase in the current normal blowdown rate of the steam generator high-capacity blowdown system. Current operating procedures (i.e., 1-OP-32.3) describe system operation at flow rates up to design values. Implementation of this proposed UFSAR change will result in the UFSAR containing a description of the steam generator high-capacity blowdown system that is consistent with, and representative of, current design and operating experience.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced

Change Item Sub # 9

Revise Section 10.4.6.3 to describe the automatic closing of the steam generator blowdown valves as two valves close on an auxiliary feedwater pump auto start signal as opposed to when any auxiliary feedwater pump is started. Based on a review of the drawings, redundant signals are generated to initiate starting the auxiliary feedwater system and closing the steam generator blowdown trip valves. These signals and components are train related. This original design feature assures the design function of minimum safeguards actuation. An auxiliary feedwater system auto start signal (two trains) will cause two of the three series isolation trip valves to close automatically. The current UFSAR statement has existed since the FSAR was initially written and is misleading in that it states that two of the three blowdown trip valves will close when any auxiliary feedwater pump is started when in fact the logic was for two valves to close on an auxiliary feedwater pump auto start signal. The proposed UFSAR change will replace misleading details with a more accurate description.

The phrase "or by AMSAC activation" in the second sentence was inappropriately included as an "administrative change" in UFSAR Change Request FN 92-066. This UFSAR change is more than administrative in nature and sufficient technical basis is needed. UFSAR Change Request FN 92-066A was initiated to document the completion of the technical review in support of the proposed changes. DCP 87-11-1 performed the ATWS Mitigation System Modification for North Anna Unit 1. UFSAR Change Request FN 89-14 was processed as part of the DCP (Appendix 8.3) which consisted of reviewing the Key Word Index and Table of Contents. The change to Section 10.4.6.3 (i.e., that two of the blowdown trip valves will close on AMSAC activation) was not included. The DCP did request a change to UFSAR Section 7.2.2.3.5 to state that the ATWS Mitigation System Actuation Circuitry would isolate blowdown lines. Throughout the Engineering Review and Safety Analysis section of DCP 87-11-1, there are statements that AMSAC provides a direct trip of steam generator blowdown valves.

A review of DCP 87-11-1 and Station Drawings 11715-ESK-6MA Rev. 10, 11715-ESK-6MB Rev. 11 and 11715-FE-21AL Rev. 1 verified that activation of both Trains of AMSAC will result in the closing of two of the three series trip valves in each of the blowdown paths. DCP 87-12-2 provided the AMSAC modifications for Unit 2, and review of the following drawings confirmed that two of these valves close on activation of both Trains of AMSAC: 12050-ESK-6MA Rev. 16, 12050-ESK-6MB Rev. 13 and 12050-FE-21AL Rev. 0.

It is concluded that the administrative change to UFSAR Section 10.4.6.3 was an oversight of the DCP. The safety evaluation prepared for this proposed UFSAR change identifies the technical basis in support of UFSAR Change Request FN 92-066A to revise UFSAR Section 10.4.6.3 as noted and will provide accuracy consistent with the design description contained in the Engineering Review and Safety Analysis section of the DCP. The Unreviewed Safety Question Evaluation is included in Section 7.0 of the Engineering Review and Safety Analysis for each Units DCPs. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 10

Revise Section 10.4.8.2 to describe the ability to operate powdered-resin filter demineralizers without a resin precoat. It is suspected that the powdered-resin demineralizer filters had permitted resin intrusion events where resin has slipped into the condensate stream. This represents an undesirable condition since the resin could eventually be carried to the steam generators where it would collect and would then be subject to breaking down and creating chemistry imbalances with the potential to damage the steam generators. DCP 95-002, Condensate Polishing System Upgrade, Unit 2, modified all five powdered-resin filter demineralizers to allow operation either with or without a resin precoat. DCP 96-016, Condensate Polishing System Upgrade, Unit 1, modified all five powdered-resin filter demineralizers in the same manner. With this facility change the system can be operated without the resin precoat and then function as a mechanical filter for the removal of suspended solids (i.e., iron and wear products). Operation in this configuration was specifically discussed in the Engineering Review and Design and supporting safety evaluations (97-SE-MOD-01 for Unit 1 and 96-SE-MOD-33, Rev. 1, for Unit 2). This proposed change to the UFSAR will describe the ability to operate powdered-resin filter demineralizers either with or without a resin precoat consistent with implemented design changes. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 13

Change condensate pump impeller material from "A48" to "B143". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The details listed for the main condensate pumps include material of construction for the pump casing and the impeller. The response to comment 10.1 listed the impeller material as ASTM B143 and for the pump casing as A48, which is consistent with the equipment purchase specification, NAS-45. However, the impeller material and the pump casing material listed in Table 10.4-2 in the UFSAR Rev. 0 is A48, as it is in the current Table 10.4-2. It is concluded that the error was made in the transcription of the comment 10.1 response to the UFSAR. The change from A48 to B143 as the pump impeller material identification is considered a correction to the Table 10.4-2 information. The ASTM B143 material is the original design material for the impeller and was previously determined to be acceptable for this application. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 14

Delete the entire table entry titled "Fifth-point heater drain cooler (CN-DC-1A and B)". This UFSAR Table 10.4-2 entry is redundant to the information in the entry titled "Fifth-point external drain cooler (CN-DC-11)" that appears later in the table. The information in the later entry was added to the UFSAR by change request FN 87-47 and constitutes the correct design information for the drain coolers following replacement by DCPs 86-04 and 86-05 (except for the mark numbers which are being corrected by this UFSAR Change Request). The duplicate entry for the drain coolers has created an administrative error in the table in that the information exists twice for the same component. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 15

Delete the parenthetical (NOT USED) for the flash evaporator distillate pumps. The reverse osmosis system was added to the facility as Design Change 89-31-3. That DCP contained changes needed for the UFSAR as Appendix 8-5 as well as to the NCRODP. The changes supported implementation of the reverse osmosis system and recognized the ability to continue to use flash evaporator equipment. EWR 91-178 evaluated the flash evaporator system and recognized the use of the evaporator distillate pumps to transfer condensate from the condensate storage tank to the primary grade water tank. Memo dated March 28, 1990 documented this operational practice. This evaluation resulted in DCP 91-176-1, Flash Evaporator Abandonment - Reroute of Distillate Pump Recirc Line. The resulting modification changed the piping configuration to eliminate an overpressure concern associated with the continued operation of the distillate pump. UFSAR Change Request FN 92-37 implemented the changes identified in Appendix 8-5 of DCP 89-31-3 and expanded the scope of changes to include marking the flash evaporator distillate pumps as "NOT USED." This proposed UFSAR change will remove the parenthetical (NOT USED) and restore the UFSAR as accurately representing the operation of the facility. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 16

Change shell material to "SA-285-C". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The intent of the table is to list design information related to the listed components.

The third point feedwater heaters were replaced under DCPs 87-14, -15, and -16 and UFSAR Change Request FN 91-04 was prepared to revise the UFSAR Table 10.4-2 to reflect the new feedwater heater design information. The feedwater heater shell material designation was incorrectly changed in the table to the SA516-70 material specification. This information was in the initial UFSAR change request, however, there was a change in Specification NAS-2070 as part of DCP 87-14-1 that was not recognized when the UFSAR change request was processed. The correct material specification for the third point feedwater heater shell is SA-285-C as indicated in NAS-2070, on the heater data sheet and the design report. This change to the description of the material specification in the table is made to correct an administrative error that was made when the UFSAR change request was generated for the new feedwater heaters. There is no change in feedwater heater material of construction, and the material specification SA-285-C was evaluated and found acceptable by the heater replacement DCPs and safety analysis. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 17

Change shell material to "SA-285-C". Identify the tubesheet material listed in the table as applicable to the 'A' train feedwater heater and add the material description for the 'B' train feedwater heater as "SA266-CL2 w/304SS overlay (B)". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The intent of the table is to list design information related to the listed components.

The fourth point feedwater heaters were replaced under DCPs 87-13 and -16 and UFSAR Change Request FN 91-04 was prepared to revise the UFSAR Table 10.4-2 to reflect the new feedwater heater design information. The feedwater heater shell material designation was incorrectly changed in the table to SA516-70 material specification. The correct material specification for the fourth point feedwater heater shell is SA-285-C as indicated on the heater data sheet and the design report. Additionally, the tube sheet material specification for the 'B' train heaters was not added to the table. The material specification for the 'B' train fourth point feedwater heater is SA266-CL2 and includes a stainless steel overlay as indicated on the heater data sheet and in the design report. The current information in the table was in the initial UFSAR change request, however, there was a change to Specification NAS-2070 as part of the DCPs that was not recognized when the UFSAR change request was processed. This information is contained in Specification NAS-2070 and is referenced in the DCP as the specification that contains the technical and performance data. These changes to the description of the material specifications in the table are made to correct administrative errors that were made when the UFSAR change request was generated for the new feedwater heaters. There is no change in feedwater heater material of construction, and the material specification SA-285-C for the shell and SA266-CL2 for the tubesheet was evaluated and found acceptable by the heater replacement DCPs and safety analysis. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 18

Change the stated heat exchanger duty to "420,400,000 Btu/hr". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The intent of the table is to list design information related to the listed components. As such, the parameters listed may not coincide with the actual plant operating data for each of the components. Plant thermal performance data is included in the heat balance diagrams, UFSAR Figures 10.1-1 and 10.1-2.

The fifth point feedwater heater tube bundles were replaced under DCPs 86-04 and 86-05 and UFSAR Change Request FN 87-47 was prepared to revise the UFSAR Table 10.4-2 to reflect the new feedwater heater design information. Subsequently, UFSAR Change Request FN 91-04 was prepared to update the UFSAR with new information related to the replacement of the first through fourth point feedwater heaters, and revised the heat duty for the fifth point heaters. The basis for the heat duty change given in FN 91-04 was to reflect changes in thermal performance of the feedwater heaters after the feedwater heater replacement project was complete. As stated above, the intent of this table is to list design data for the components and the design heat duty may not reflect actual thermal performance of the units. The change made by FN 91-04, therefore, did not meet the intent of the table and the heat duty for the fifth point feedwater heaters is being changed to reflect the design heat duty value. There is no change in feedwater heater design, capacity, or operation associated with this change. This change corrects an administrative error made by FN 91-04. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 19

Change the description of the tube material to "SA249 TP304". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The intent of the table is to list design information related to the listed components.

The feedwater heater replacement project generated UFSAR Change Request FN 91-04 in order to update the information in Table 10.4-2 to reflect the new feedwater heaters. FN 91-04 also revised the material specification for the sixth point heater tubes to SA688-TP304 even though the sixth point heaters were not affected by the feedwater heater replacement project. The tube material specification for these heaters is actually SA249-TP304 based on the original ASME Form U-1, Manufacturer's Data Report. The change made by FN 91-04 was incorrect and this change corrects the tube material specification to SA249 TP304. There is no change in feedwater heater material of construction, and the material specification SA249 TP304 for the heater tubes is the original material. The tube material specification was changed incorrectly by FN 91-04. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 20

Change the component mark number to "(CN-DC-1A, B)" and change the tube material to "SA688 TP304". UFSAR Table 10.4-2 lists design data for major secondary systems components. The information in this table was originally provided in response to AEC initial licensing comment 10.1, and was subsequently included in the initial Updated FSAR, UFSAR Rev. 0. The intent of the table is to list design information related to the listed components.

The fifth point feedwater heater drain coolers were replaced by DCPs 86-04 and 86-05 and UFSAR Change Request FN 87-47 was generated to revise the Table 10.4-2 information for the drain coolers. FN 87-47 added this entire table entry related to the drain coolers (the change request did not recognize the existence of the drain cooler information located earlier in the table). The change requested by FN 87-47 was incorrectly typed into the UFSAR and resulted in an error in the drain cooler mark number. The mark number is changed to "CN-DC-1A, B" by this change request. Additionally, the material specification listed in the table for the drain cooler tubes is added by this change request for consistency with the level of detail given for the other feedwater heaters in the table. The material specification SA688 TP304 is the tube material as given on the data sheet for the drain coolers. There is no change in drain cooler tubes material of construction, and the material specification SA688 TP304 was evaluated and found acceptable by the drain cooler replacement DCPs and safety analysis. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 21

Revise Table 10.4-4 to account for assumptions in the cooldown analyses related to the volume of the main feedwater purge volume and temperature and the use of sensible heat. Additionally, correct two typographical errors in footnote b. Regarding the main feedwater purge volume. The cooldown calculations of record do not specifically account for the main feedwater purge volume. This is acceptable since only a small amount of total purge volume would need to be boiled off to reduce the overall purge volume temperature to the final temperature. Although this would have the effect of reducing the water volume remaining in the steam generator, the impact would be minimal and the total water volume remaining in the steam generator secondary still represents a significant heat sink when 350 F RCS temperature is reached. Further, it should be noted that Calculation SM-1152, NAPS Emergency Condensate Storage Tank Heat Removal Capacity Using TS Minimum Volume, contains several conservatisms that have been identified but have not yet been quantified to provide additional margin in that calculation. Thus, the purge volume entry in the Cooldown transient list should be changed to 'NA' to be consistent with the cooldown calculations of record.

Regarding the sensible heat assumptions used in the analyses. Of the transients that are listed in this table, the Cooldown transient is the only one that is not performed using the RETRAN code to perform the transient analysis of the RCS and secondary system. The cooldown transient has been performed as a simple heat balance calculation. The sensible heat sources that are currently listed in footnote 'b' under the cooldown transient (sensible heat) are the available sources of sensible heat for all of the transients when considering the RCS and main feedwater and main steam systems. The modeling for each of these transients does not necessarily include each and every source of sensible heat. For instance, the RETRAN model conservatively does not include the mass of the steam generator shell. Since this metal would be at a given initial condition, it will either act as a heat sink or a heat source during a transient that changes the secondary pressure and thus temperature. If the transient is a heatup transient, the SG shell temperature will lag the secondary water temperature and act as a heat sink which would tend to slow the transient response and make the results less limiting. For the shorter term cooldown transients, the metal mass becomes a heat source and as such slows down the cooling process and so makes the results less limiting. Therefore, the transient models do not include the steam generator shell mass on the secondary side as it makes the transient analysis results more conservative. The calculation of the cooldown heat balance, on the other hand, does include that mass because of its overall impact on that calculation. It is therefore appropriate to preface this list of sources of sensible heat with a statement that acknowledges that the sources of sensible heat are conservatively determined for each transient.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the UFSAR changes only involve changing the description of the cooldown transient assumptions and not a change to the transient analysis methodology and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 22

Revise Figure 10.4-4 by removing one of the parallel check valves shown in each of the feedwater pump recirculation lines between the steam generator feedwater pumps and the feedwater recirculation valves. DCP 96-234 was written to authorize piping and component replacements in Unit 1 secondary systems due to flow accelerated corrosion (FAC) degradation. The replacements included piping and valves, and included changes in materials of construction, changes in dimensional characteristics and replacements in kind. The modifications were made in order to increase the piping and component resistance to FAC degradation.

The configuration of the Unit 1 feedwater pump recirculation lines was changed by DCP 96-234 by removing the two parallel 8" check valves and installing a single 10" check valve in its place in each of three recirculation lines. This configuration is consistent with the Unit 2 feedwater pump recirculation piping configuration. The associated Unit 1 piping and the valve material of construction was also changed from carbon steel to 2 1/4% chromium/1% molybdenum material. These changes are described in the DCP 96-234 Engineering Review and Design section, and the Programs Review included a review of the UFSAR. The DCP review concluded that, although the UFSAR Figure 10.4-8 (Feedwater) was affected, a UFSAR Change was not required since the figure would be updated by the Drawing Update Group. The current UFSAR figure for the feedwater system is a simplified diagram, Figure 10.4-4, and the parallel check valve configuration is shown.

The Unit 1 feedwater pump recirculation piping and valves configuration change implemented by DCP 96-234 results in a change to UFSAR Figure 10.4-4, Feedwater System. This change is acceptable since it will improve valve reliability and reduce service degradation due to the effects of FAC. The modified configuration has been reviewed to ensure design requirements for valve pressure/temperature rating, fluid flow characteristics, and piping system structural support are met. Additionally, this configuration is currently part of the Unit 2 feedwater pump recirculation piping system. The proposed change involves physical change to the facility that was evaluated by DCP 96-234, Request for Engineering Assistance 96-129, Calculation 11715-X2-50, and ET No.CEM-97-0024, Rev. 0. These reviews concluded that there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Based on the review performed for DCP 96-234, the change in configuration of the feedwater pump recirculation line does not create the possibility of an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected by this change, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #23

Revise Section 10.4.6.3 to improve readability and remove potentially misleading details regarding the discussion of the air ejector trip valves, the steam generator blowdown trip valves, and the steam supply to the air ejectors. Section 10.4.6.3 provides the "Design Evaluation" for the Secondary Vents and Drain Systems. This discussion provides details of component response to specific events to demonstrate satisfying design requirements. Each of the items is discussed separately.

1) Replace the term "diversion" with "trip." The steam jet air ejectors take suction from the air suction headers leading from the condensers and discharge to the atmosphere. This discharge flow path is diverted to the reactor containment if the radiation monitoring system detects radioactivity in the discharge stream. A review of the instrument loop drawings shows the two valves involved are interlocked to assure only one valve is opened at a time. These valves are referred to as "trip" valves in procedures and in the instrument loop diagrams. Changing the terminology from "diversion" to "trip" will result in common terminology existing between the plant documents and the UFSAR when describing these valves.

2) Change the reference to the diversion valves to a singular trip valve and focus the statement on preventing the possible release of radioactive contaminants to the atmosphere. Air ejector air discharge trip valve SV-TV-102-2 is normally open and is in the flow path to the ventilation vent releasing to the atmosphere. Air ejector air discharge trip valve SV-TV-102-1 is normally closed and is in the flow path to the containment. These two valves are interlocked to assure only one valve is opened at a time. Revising the statement to indicate one valve fails closed versus two valves failing closed provides a consistent explanation of valve operation as it relates to the balance of the statement regarding preventing possible radioactive contaminants from reaching the atmosphere. The addition of the ventilation vent release point further supports the design description since only one valve is in the flow path to the atmosphere.

3) State that the air-operated shutoff valve in the steam supply line to the air ejectors "fail" closed as opposed to simply stating that they close. A review of the instrument loop diagrams shows the air-operated shutoff valves in the steam supplies to the air ejector will fail closed upon loss of power or air. This is considered a clarifying change to restate the design function in terms that are consistent within the paragraph.

4) Revising the sentence that states the "diversion valve leading to the containment" to read as the "trip valves leading to the containment." The use of the word "diversion" is not defined in the UFSAR although it may be assumed that the diversion valve in this discussion would be the trip valve, SV-TV-102-1, that is in the flow path to the containment. This valve receives a containment isolation signal and is described as a containment isolation valve in Section 6.2.4, Table 6.2-37. Additionally, trip valve SV-TV-103 is in series with SV-TV-102-1 and also receives a containment isolation signal and is described as a containment isolation valve, however, only SV-TV-103 is Type C tested as described in the Technical Requirements Manual. The containment isolation system discussion in Section 6.2.4.2 states that additional automatic valves are provided for the air ejector vent. The change to this UFSAR statement, to include the terminology "trips valves" more accurately describes the actual configuration and is consistent with other UFSAR discussions.

5) Clarify that the three blowdown trip valves in the discussion are those associated with any one steam generator, combining related UFSAR details regarding the valves description into a single sentence, and adding consistency between Sections 10.4.6.3 and 10.4.6.5 regarding the number of blowdown trip valves that function as containment isolation trip valves. The addition of "for each steam generator" makes it clear what three blowdown trip valves are being discussed and that two of these three valves are part of the containment isolation system. Without this clarification, the sentence is potentially confusing since there are a total of nine valves labeled as steam generator blowdown valves and signals for containment isolation and blowdown excess flow rate for valve closure are mixed between these nine valves. Revising Section 10.4.6.5 to state that the steam generator blowdown system includes two containment isolation valves versus three adds consistency with Sections 10.4.6.3 and 6.2.4, Containment Isolation System. The design

information for the steam generator blowdown system is outlined in Table 6.2-37 and lists two containment isolation blowdown valves, one inside and one outside containment, as satisfying 10 CFR 50, Appendix A, General Design Criteria 57. This information in this UFSAR table has been validated as being accurate. The UFSAR statement that the steam generator blowdown system includes three containment isolation valves per steam generator was added to the UFSAR in the initial Updated FSAR, UFSAR Rev. 0. A facility change, DCP 78-57, to install circuitry to prevent high flow trips on the steam generator lines during initial pressurization contained a write up in the Final Design Description that included this statement. The FSAR initial update review included a review of this DCP that resulted in the insertion of this entire DCP description into the Updated FSAR. The DCP did not change the containment isolation function of the existing steam generator blowdown valves and did not add a containment isolation signal to trip valve(s) TV-BD-100G, (H, J), therefore, the system design for two steam generator blowdown trip valves to function as containment isolation valves was not affected.

These changes are being made to enhance clarity and readability and remove potentially misleading information regarding the design of the secondary system vents and drains. The changes in terminology and descriptive statements do not affect system function. The recognition that two trip valves are in the air ejector air discharge line flow path to the containment instead of one valve more completely describes the as built, as designed, facility. The revision to the statement that the steam generator blowdown system includes two containment isolation trip valves versus three corrects misleading information. The design function and the component response described in this section of the containment isolation system and steam generator blowdown system are not affected as a result of these proposed UFSAR changes. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub #24

Revise Section 10.4.6.5 to specifically identify the blowdown trip valves that are push button operated, from the main control room, are the containment isolation blowdown trip valves. This discussion in Section 10.4.6.5 states that push buttons are provided in the main control room for opening and closing certain valves. The blowdown trip valves are push button operated, but only two of three of these valves, per steam generator, have their push buttons located in the main control room. These two valves are the containment isolation blowdown trip valves. The remaining blowdown trip valve(s) push button(s), TV-BD-100G, (H, J), are located in the auxiliary building penetration area. This change revises potentially misleading information by specifying which blowdown trip valves have push buttons in the main control room. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-48

Description

Technical Specification Change Request No. 373
UFSAR Change FN 99-055
The Technical Specification change will relocate Section 3/4.6.4.3, "Waste Gas Charcoal Filter System," from the Technical Specifications to the Technical Requirements Manual (TRM).
Correct the values stated in UFSAR Section 15.3.5 for total curie content assumed released in WGDT rupture.

Summary

The proposed changes will remove the operability and surveillance requirements for the Waste Gas Charcoal Filter System from the Technical specifications and relocate these requirements in the Technical Requirements Manual (TRM). In addition, the values assumed in the WGDT rupture are being revised to reflect the current calculation values.

A waste gas decay tank rupture is highly unlikely, as the waste gas decay tanks are designed and constructed to stringent quality control standards, are provided with pressure relief valves to prevent overpressurization, are missile-shielded by installation below grade, and have their gaseous contents controlled to prevent potentially explosive mixtures. The entire gaseous content of the waste gas decay tank is assumed to be released to the atmosphere as a ground-level release. Although the Technical Specifications limit the content of each tank to less that 25,000 curies of noble gases (TS 3.11.2.6), the total activity assumed to be released during a waste gas decay tank rupture is 73,000 Ci of Xe-133 equivalent and 0.084 Ci of I-131 equivalent (SWEC Calculation No. RP-11715-A109-0,"Waste Gas Decay Tank Burst for FSAR & (Rev. 1) & (Rev. 2)", 10/25/72). The waste gas charcoal filter system is not credited for any mitigation of the release in the accident analysis. In addition, the releases associated with a waste gas decay tank rupture are bounded by the existing LOCA releases. Specifically, operation of the North Anna Power Station in accordance with the proposed Technical Specification changes will not:

1. Involve an increase in the probability or consequences of an accident previously evaluated.
   Relocating the operability and surveillance requirements for the Waste Gas Charcoal Filter System to the TRM and correcting the Curie content of the WGDT assumed in the accident analysis do not change the operation of the plant. The plant and the radioactive gas waste system will not be operated differently. No new accident initiators are established as a result of the proposed changes. Therefore, the probability of occurrence is not increased for any accident previously evaluated.

   Relocating the operability and surveillance requirements for the Waste Gas Charcoal Filter System to the TRM and correcting the Curie content of the WGDT assumed in the accident analysis do not effect the gaseous releases to the environment, which are controlled by the ODCM. Additionally, no credit for these filters is taken in the accident analysis for Waste Gas Decay Tank rupture. Therefore, there is no increase in the consequences of any accident previously analyzed,

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.
   The proposed changes do not affect the operation of the plant. The gaseous waste systems will not be operated differently as a result of the proposed changes. No new accident or event initiators are created by moving the operability and surveillance requirements for the Waste Gas Charcoal Filter to the TRM and correcting the Curie content of the WGDT assumed in the accident analysis. Therefore, the proposed changes do not create the possibility of any accident or malfunction of a different type.

3. Involve a reduction in the margin of safety as defined in the bases on any Technical Specifications.

The proposed changes have no effect on any safety analysis assumptions. Credit for the waste gas charcoal filters is not taken in the accident analysis for a Waste Gas Decay Tank rupture. Therefore, the proposed changes do not result in a reduction in a margin of safety. Releases are controlled by the ODCM.

99-SE-OT-53

Description
CTS 02-99-2124-003, UFSAR Change Request FN99-049
UFSAR Section 2.4.11.6 is being changed to document how SW spray array nozzles are maintained unobstructed due to icing of the nozzles during freezing precipitation or from spray drift from operating arrays onto idle arrays. Additionally, the statement that a minimum flow of water is maintained through the nozzles from the SW screen wash system is being deleted.

Summary
PPR 99-006 was written 2/15/99 to document that a discrepancy existed with Section 2.4.11.6 of the UFSAR. Specifically, the UFSAR described prevention of freezing of SW headers by maintaining flow through the headers. Furthermore, the UFSAR stated that icing of non-operating nozzles could result from spray drift. To prevent this, bypass flow to non-operating nozzles would be maintained by diverted flow from the SW screen wash system. This description pertained to the old SW spray arrays, which have since been demolished in favor of construction of the SWVH and new SW spray/bypass system.

The SW Integrated Review Team could not validate the statement in Section 2.4.11.6 of the UFSAR describing prevention of icing in idle SW arrays, since it was no longer applicable (i.e., the SW Reservoir Improvement Projects installed the new array system in the mid 1980's, which has no tie to the SW screen wash system). Furthermore, the IRT speculated that freezing precipitation (frozen rain, sleet, snow, or spray drift from arrays in service to idle arrays) could result in less than analyzed design basis heat transfer. The worst-case postulated scenario, although highly improbable, could encapsulate the nozzles, resulting in dead-heading of the SW pumps and leaving the SW system incapable of performing design basis heat transfer in the event of a CDA. However, partial blockage of the array nozzles is a more likely scenario. In this condition, once spray was initiated following a SI, the partial blockage would quickly melt when 50-55F (minimum reservoir temperature following installation of the winter bypass line) SW came in contact with the icing on the nozzle structure. DR N-99-412 was promptly written on 2/16/99 to document that this newly realized potential for system degradation might not comply with GDC-2, which requires that SSC's be designed to withstand the effects of natural phenomena.

Procedural guidance (reference 0-OP-49.1, -49.4, -49.6, O-LOG-6A, 0-GOP-10.6A, and 0-AP-41.1) now require each array to be flowed at least 5 minutes each hour (or alternatively, all arrays could be placed in service) if the outside temperature is 34F or less AND frozen/freezing precipitation (freezing rain, sleet, snow, or spray drift from an operating array to an idle array) is occurring.

Thus, this Safety Evaluation is required to support the accompanying UFSAR Change Request describing how the SW spray arrays are maintained ice-free. Since intermittent operation of the SW spray arrays during inclement weather has been determined by this Safety Evaluation not to increase the probability or consequences of a DBA, or create the probability of a new accident, this change does not result in an unreviewed safety question.

99-SE-OT-54

Description

Chemistry Special Order No. 99-009

Approval for the interim use of Calgon Deposit Penetrant, CL-363 in the Bearing Cooling System is being sought due to the recent oil-intrusion incident (reference PI N-99-2478). Oil in the Bearing Cooling system is subject to coat heat exchanger tubes with a layer of biofilm. This biofilm could hinder heat exchanger performance, which could result in reduced plant efficiency. Chemistry Special Order No. 99-009 is being proposed to use CL-363 to remove the oil film from the system components to preclude degraded cooler performance. The Chemical Special order will control the location, quantity and duration of the application per the recommendations of the Chemistry Supervisor. The penetrant will be applied directly to the cold-water basin of the Bearing Cooling tower by Chemistry.

Summary

Approval for the interim use of Calgon Deposit Penetrant, CL-363 in the Bearing Cooling System is being sought due to the recent oil-intrusion incident (reference PI N-99-2478). Oil in the Bearing Cooling system is subject to coat heat exchanger tubes with a layer of biofilm. This biofilm could hinder heat exchanger performance, which could result in reduced plant efficiency. Chemistry Special Order No. 99-009 is being proposed to use CL-363 to remove the oil film from the system components to preclude degraded cooler performance. The Chemical Special order will control the location, quantity and duration of the application per the recommendations of the Chemistry Supervisor. The penetrant will be applied directly to the cold-water basin of the Bearing Cooling tower by Chemistry.

To address the plant safety significance of this Chemistry Special Order, the following accidents per the SAR were considered:

> UFSAR Chapter 15.2.8 – Loss of Normal Feedwater: The loss of Bearing Cooling could result in a Main Feedwater pump trip or failure because the BC system provides pump seal-oil cooling.

It is unlikely that this interim use of CL-363 in the Bearing Cooling tower would result in the loss of Bearing Cooling; however, in the event that Bearing Cooling is not available no safety systems would be impacted as the Auxiliary Feedwater system would be used.

> UFSAR Chapter 6.4 – Habitability Systems: for the Control Room to ensure that continuous occupancy of the areas is possible for the events described in Chapter 3 as well as all of the postulated accidents discussed in Chapter 15.

The use of CL-363 will not impact the Control Room Habitability analysis as it will be stored in warehouse #7, which is outside of the control room habitability inclusion area, and transported to the Bearing Cooling Basin in 5-gallon quantities (less than 100 lbs). The chemical will be handled and applied by trained chemical technicians.

Thus, no unreviewed safety question exists.

99-SE-OT-55

Description

- Engineering Transmittal CEE 99-0014, Rev. 0, *Station Battery Charger Sizing Evaluation, North Anna Power Station, Units 1 and 2,* dated 10/28/99.
- Technical Specification Change Request # 374
- Deviation Report N 99-1526 and PPR 99-027

Technical Specifications require battery charger testing @ ≥ 200 amps @ 125Vdc @ ≥ 4 hours. ET CEE-99-0014 shows that the majority of battery chargers require a capability greater than the 200 ampere minimum test value. Previously performed testing demonstrates the chargers are capable of carrying required loading except chargers 1-III, 1C-II, 2-III, and 2C-II. Admin control and procedures changes have been implemented for the outlying chargers to ensure all chargers are capable of meeting design requirements in the future.

Summary

Based on the analysis performed in ET CEE-99-0014, the Tech Spec testing values for the batteries do not bound the required battery charger capacity. While the latest testing of the chargers demonstrates the chargers are capable of providing the required capacity with either the current admin controls in place or the proposed procedure changes, Tech Spec surveillance requirements shall be changed to ensure future testing is adequate for its intended function.

The ET also shows that the battery chargers associated with batteries 1-III and 2-III do not meet the UFSAR and design basis requirement of "charging the batteries from the maximum discharge condition to full charge in 24 hours while supplying the normal or emergency steady state loads." Changes to procedures are required to ensure these specific chargers meet these requirements. The ET determined the chargers are able to supply loads and recharge the battery within 24 hours with either the current admin controls in place or the proposed procedure changes. Therefore, no safety concern currently exits and procedure changes will ensure the future capability to meet the UFSAR/design basis requirements.

1. The probability or consequences of an accident or malfunction previously evaluated in the safety analysis report are not increased.

No new accident precursors are introduced. Changes to Technical Specification Surveillance Requirements and procedure changes improve the operation of the battery chargers and ensure they perform as designed.

2. The possibility of an accident or malfunction of a different type than previously evaluated in the safety analysis report is not created.

Based on a review of the SAR, there are no malfunctions of equipment previously considered that could be attributed to battery chargers. The batteries operation and capabilities are not impacted by operation of the battery chargers. The battery chargers will be ensured of correct operation by the proposed changes to the Tech Spec SRs and station procedures. The probability of occurrence of malfunction of the DC power train will not be increased due to these changes.

3. The margin of safety as defined in the basis for any Technical Specification is not reduced.

The actual margin of safety is not specifically addressed in the bases section. Tech Spec bases assume the operability of at least one of each of the onsite AC and DC power sources and associated distribution systems during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite AC source. When subjected to a loss of offsite power and the EDGs energizing the bus as designed, the battery chargers are completely capable of performing their safety function. Should the EDG not energize the bus, the admin controls presently in place and the procedure changes recommended ensure the chargers continue to be capable of performing their safety function once AC power is restored. Therefore, no margin of safety is impacted.

99-SE-OT-56

Description
Change Request No. FN 99-047 for North Anna Units 1 and 2 UFSAR Section 15.2.8, "Loss of Normal Feedwater", UFSAR Section 15.2.9, "Loss of AC Power to the Station Auxiliaries", and UFSAR Section 10.4, Table 10.4-4.
This safety evaluation supports a revision to Sections 10.4, 15.2.8, and 15.2.9 of North Anna Units 1 and 2 Updated Final Safety Analysis Report (UFSAR). The loss of normal feedwater accident reanalysis is performed using improved in-house analysis techniques within the constraints of applicable analysis requirements.

Summary
PURPOSE

This Safety Evaluation supports a revision to Sections 15.2.8 "Loss of Normal Feedwater", 15.2.9 "Loss of AC Power to the Station Auxiliaries" and Table 10.4-4 of Section 10.4 of the North Anna Units 1 and 2 Updated Final Safety Analysis Report (UFSAR).

BACKGROUND

This safety evaluation has been prepared to support the incorporation of a revised UFSAR description of the Loss of Normal Feedwater (LONF) and the Loss of AC Power to the Station Auxiliaries (LOAC) accident analyses. The primary technical reference for the revised UFSAR description is Calculation SM-0549, Revision 1 (Reference 1), which consolidates and summarizes the LONF and the LOAC accident analyses design basis for North Anna Units 1 and 2. Calculation SM-0549, Revision 1, was prepared to revise UFSAR Sections 15.2.8 and 15.2.9 utilizing Virginia Power in-house improved analysis techniques and to address a Westinghouse concern over the modeling of pressurizer heaters and sprays for events analyzed for pressurizer overfill (Reference 2).

A loss of normal feedwater transient was analyzed to study the sensitivity of the analysis results to availability of pressurizer heaters and sprays during the accident with and without offsite power. A loss of normal feedwater without offsite power (i.e. the reactor coolant pumps tripped) models the loss of AC power event by conservatively assuming an initiating event consisting of a loss of normal feedwater followed by loss of power to the reactor coolant pumps. The loss of AC power event can be assumed as a special case of the loss of normal feedwater event from an analysis standpoint. Thus the safety evaluation performed here for the loss of normal feedwater with and without offsite power is adequate for both the LONF and the LOAC accidents.

SUMMARY OF LONF ACCIDENT ANALYSIS

The Loss of Normal Feedwater (from feedwater pump failure, valve malfunction, or loss of power to the feedwater pumps) results in a reduction in the secondary system's capability to remove heat generated in the reactor core. Loss of all AC power to the station auxiliaries is also addressed.

The Loss of Normal Feedwater transient is characterized by a rapid rise in the RCS pressure and temperature and the pressurizer water volume. The transient is terminated by a reactor trip which occurs on a low-low steam generator level. Auxiliary feedwater provides a heat sink following reactor trip to remove residual heat and prevent core damage. Since the plant is tripped well before the steam generator heat transfer capability is reduced, the reactor does not reach a DNB condition.

One case of the Loss of Normal Feedwater analysis is performed to demonstrate that the maximum pressurizer water volume does not lead to water relief through the pressurizer PORVs. The analysis is run for a time period long enough to ensure that a long term decrease in the pressurizer water volume occurs. Other cases assess the reactor coolant and main steam system peak pressures against their respective acceptance criteria.

With respect to the proposed revision to the UFSAR description of the LONF accident analysis, the following conclusions are applicable:

a. The probability of occurrence of the LONF and the LOAC accidents is not increased by the incorporation of the revised UFSAR Sections 15.2.8 and 15.2.9 description of the accident analyses. The proposed UFSAR text reflects current licensing commitments, and relies on existing Technical Specification and procedural requirements to ensure that the LONF and the LOAC accident analyses remain valid. Because no operational changes are necessitated or assumed by the revised analysis or by the incorporation of the revised UFSAR description of the LONF and the LOAC accident analyses, it is concluded that the probability of occurrence of the LONF and the LOAC accidents is not increased.

b. The implementation of the proposed changes to the UFSAR sections does not create the possibility of an accident of a different type than was previously evaluated in the SAR. All applicable accident analysis acceptance criteria, including accident propagation criteria, will continue to be met. No system configuration, design or method of operation is being changed. No new or unique accident precursors are introduced. The proposed change wills not compromise the ability of operators to control the plant under normal and accident conditions since the heat removal capacity of the system remains adequate.

c. The margin of safety in the LONF and the LOAC accident analyses is not reduced by the incorporation of the revised UFSAR Sections 15.2.8 and 15.2.9. The proposed UFSAR change does not change the plant configuration or mode of operation. The accident analysis for the LONF and the LOAC event shows adequate margin to the event acceptance criteria. Therefore, the margin of safety will not be reduced by the implementation of the revised UFSAR.

99-SE-OT-57

Description
North Anna UFSAR change request # FN 99-061
UFSAR change request FN 99-061 contains four changes which need to be corrected or enhanced in the UFSAR sections that discuss North Anna's Containment Atmosphere Cleanup System. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's Containment Atmosphere Cleanup System.

Summary

The following editorial/clarification changes are proposed (identified by change item subnumber). These changes do not affect any containment atmosphere cleanup systems, component, or any other SSC operation or performance. This change does not result in an unreviewed safety question. This is an editorial change only and therefore, does not impact the margin of safety or change the consequences of an accident as described in the UFSAR.

Change Item Sub # 1
Revise the location of the hydrogen recombiners in Table 3.11-2 to indicate that they are located in the Post Accident Recombiner Room. Table 3.11-2 provides a list of ESF or safety related equipment, their location, and their use. Currently, the UFSAR indicates that the hydrogen recombiners are located in the Auxiliary Building. This is incorrect because Drawing 11715-FM-2C and the Equipment Data System indicate that the recombiners are located in the Post Accident Recombiner Room. This proposed change will correct the UFSAR to provide the accurate location of the hydrogen recombiners.

This proposed change does not change the intent of describing the containment atmosphere cleanup system components, their location, and their use in Table 3.11-2. The design basis and operation of the containment atmosphere cleanup system is unchanged and there are no commitment changes.

Change Item Sub # 3
Identify the statement in Section 6.2.5.2 that discusses the similarity of the North Anna hydrogen recombiners to those at other stations as HISTORICAL. Also, change the verb tense to the past. The discussion of the similarity of the North Anna hydrogen recombiners to those at other stations was provided in Section 6.2.5.2 for comparison purposes during initial licensing. This discussion was evaluated at the time of initial licensing, but was not intended to be updated. Consequently, this statement will be indicated as historical because it is not intended or expected to be updated for the life of the plant.

Change Item Sub # 4
Clarify the description of the location of the hydrogen analyzers remote control module in Section 6.2.5.2 to indicate that it is a panel and it is located in the instrument rack room instead of "outside the control room." Section 6.2.5.2 describes the design of the containment atmosphere cleanup system and provides a discussion of the hydrogen analyzers associated with this system. As part of the discussion, the hydrogen analyzer remote control panel that is located in the instrument rack room in a seismically-mounted instrument rack is described as a remote control module located outside the control room in a seismically-mounted instrument rack. Although the description is correct, this proposed change will clarify the description of the component and its location. This is acceptable because the seismic mounting of the panel is maintained and the description more accurately reflects the actual location.

This proposed change does not change the intent of the original discussion and the design basis of the containment atmosphere cleanup system is not altered.

Summary:
The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or

components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, these proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

The proposed editorial changes do not involve a physical alteration of the plant, or a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR change does not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regards to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed (identified by change item subnumber). The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these items is discussed

Change Item Sub # 2

Revise Section 6.1 to indicate that the containment atmosphere cleanup system will be in service within 24 hours after an accident. The containment atmosphere cleanup system is designed to meet the requirements of General Design Criteria 41 in that it controls the concentration of hydrogen or oxygen and other substances in the containment atmosphere following postulated accidents to ensure that containment integrity is maintained. A hydrogen concentration below the flammable limit of 4 volume percent is required to ensure containment integrity. Calculation 01040.2710-US(B)-267, Rev. 0, "Post DBA Hydrogen Analysis," confirms that the hydrogen concentration remains below the 4 volume percent limit when the hydrogen recombiners are in service 24 hours after initiation of a LOCA. The Large Break Loss of Coolant accident safety analyses also requires the hydrogen recombiners to be fully operational 24 hours after the initiation of the LOCA in order to meet the acceptance criteria, as documented in Technical Report NE-1200, "Key Operator Actions Assumed in the Safety Analyses," August 1999. Following a LOCA, Emergency Procedures 1/2-E-1 direct the operator to place the hydrogen recombiners inservice. Technical Report NE-1184 documents the simulator runs performed by NAPS Nuclear Training to verify that the operators could carry out the assumed operator actions in the 24 hour timeframe assumed in the analysis. UFSAR Section 6.2.5.2 indicates the 24 hour operational requirement for the hydrogen analyzers that is assumed in the LBLOCA, but Section 6.1 states that the containment atmosphere cleanup system will be started several days after an accident to control hydrogen below 4 percent volume. This proposed change will revise Section 6.1 to indicate the 24 hour inservice requirement for the hydrogen recombiner following an accident.

This proposed change does not change the intent of describing the operation of the containment atmosphere cleanup system. The design basis of the containment atmosphere cleanup system is unchanged and consistency is maintained within different sections of the UFSAR. Since the proposed change does not involve physical changes to the containment atmosphere cleanup system or require changes to procedures that are used to respond to an accident, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves maintaining consistency in different sections within the UFSAR, accurately reflecting current operation of the containment atmosphere cleanup system, and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since this change accurately reflects assumptions in the accident analyses and does not change the acceptable results of the accident analyses, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:
The above non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the containment atmosphere cleanup system to perform its design function in the event of a DBA, nor is there any change in the likelihood that any credited equipment will fail to perform. The reported results for containment peak pressure, containment depressurization time, containment subatmospheric peak pressure, and doses for the control room and exclusion area boundary or low population zone are unchanged. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regards to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined to not represent an unreviewed safety question.

99-SE-OT-58

Description

North Anna UFSAR Change Request No. FN 99-051

UFSAR Change Request No. FN 99-051 contains a list of changes, some of which are editorial in nature, that need to be corrected or clarified in the UFSAR sections that discuss North Anna's sampling and primary vents and drains systems. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's sampling and primary vents and drains systems.

Summary

The following editorial changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any sampling or primary vents and drains system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub # 7

Correct the spelling for "auto-titrator." This editorial change does not alter the intent of the statement.

Summary:

The above editorial change is within the current design and licensing basis of the facility. This change does not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. This change does not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. This change does not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial change to the UFSAR does not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

The proposed editorial change does not involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial change to the UFSAR does not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub # 1

Correct the description of continuous sample points in UFSAR Sections 9.3.2.1.1, 9.3.2.1.2, and 10.4.8.4. Remove the implication that condensate pump discharge and condensate downstream of the chemical feed connections can be monitored simultaneously. Remove reference to continuous monitoring of the condensate polisher and flash evaporator.

DCP 85-02 installed the On Line Chemistry Monitoring System. The system is designed with two locations for obtaining condensate samples for each unit, as shown on drawings 11715-FM-089B, sheet 2 and 11715-FM-73A. The primary sample point is downstream of the condensate pump discharge and the alternate sample point is downstream of the chemical feed connections to condensate (at the outlet of condensate from the flash evaporator). The primary and alternate sample lines are tied together upstream of the sample panel with the common line supplying the panel. This precludes continuous sample monitoring of both the condensate pump discharge and the condensate system downstream from the chemical feed connection.

Drawing 11715-FM-17B shows that the condensate polisher discharge continuous monitoring instrumentation no longer exists. EWR 90-385 and supporting safety evaluation 91-SE-MOD-054 removed the condensate polisher sampling equipment. Therefore, no continuous monitoring is performed, or required. The current method used for sampling the condensate polisher is described in UFSAR Section 10.4.8.5. This change adds consistency by removing contradictions from the UFSAR.

EWR 91-178 abandoned the flash evaporator and associated support equipment; therefore, the flash evaporator discharge is no longer sampled. Safety Evaluation 91-SE-OT-040 written for UFSAR change 91-31 evaluated leaving the flash evaporator out of service indefinitely. Since the flash evaporator is no longer used as a source of clean water for plant operations, there is no way to maintain continuous sampling of it, and no need to keep the requirement in the UFSAR.

Since the proposed changes implement previously approved changes to the facility and do not require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve correcting the description of the system in the UFSAR and do not require additional changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 2

Delete reference to emergency power provided for the high radiation sample system in Section 9.3.2.2.3. The high radiation sample system was added in response to the post-TMI requirements that became NUREG-0737. As stated in our response to II.B.3 and repeated in the NRC safety evaluation report (SER) for the high radiation sampling system (dated 1/11/83), "HRSS electrical power supply will be from the normal station service power supply design (sic) to provide continuous power to the station during periods of generation and to transfer automatically to the reserve station service to ensure continued power to equipment when the main generator is off the line." Drawing 11715-FE-18CQ shows the power for the high radiation sample system to be from either a Unit 1 or Unit 2 station service bus with a manual switch. The UFSAR currently states that electrical power to the high radiation sample system is from the normal buses with a manual tie-in to the station emergency bus, and this proposed change will correct the statement to indicate the actual electrical power source to this system. Because normal station service power is designed to transfer to reserve station service when the expected power source is unavailable, our submittal to the NRC and the NRC SER for the high radiation sample system contain true statements and the utility commitments to the NRC continue to be met. Since the proposed changes do not require physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve correcting the description of the system in the UFSAR and do not require any physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 3

Correct the description of the air accumulators for the high radiation sample system valves in Section 9.3.2.2.3. This UFSAR section states that the air-operated valves for other sample lines, including the pressurizer relief tank gas space, are furnished with dedicated instrument air accumulators so that the high radiation sample system can draw a sample in the event of a failure of the IA system. This is incorrect because no evidence has been found that these dedicated instrument air accumulators were ever installed for the pressurizer relief tank sample line air operated valves. There is no regulatory requirement for the pressurizer relief tank gas space to be sampled by the high radiation sample system. However, the licensing correspondence for the HRSS states that air accumulators were provided for the reactor coolant sample lines, in the Response to NUREG-0737, Post-TMI Requirements. These air accumulators are in the auxiliary building, and do provide backup air to operate the air operated valves in the HRSS reactor coolant sample lines, as shown in station prints 11715-FM-82P sh.1 and 2, and Test Loop Diagram 11715-HRS-042. Therefore, this change is requested to make this statement match what the licensing correspondence and the design of the station. Since the physical configuration of the station matches the description of the station as reported in the licensing correspondence reviewed by the NRC, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the correct description of the system design uses the same type of equipment and actuation as what is currently described, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 4

Replace the definitions of high level liquid waste and low level liquid waste in Section 9.3.3.2 with a description of how the waste is processed for release. VPAP-2103N, the Offsite Dose Calculation Manual, details methods for waste processing and release. It does not contain the outdated definitions currently in the UFSAR for high level liquid waste and low level liquid waste. Potentially contaminated sources of water are routinely collected in the high level waste drain tanks prior to processing. Sampling these liquids from the low level waste drain tanks is performed in accordance with the ODCM to ensure release limits are not exceeded. The ODCM contains our radioactive effluent controls program, as specified in Technical Specification 6.8.4.e. Since this change does not require changes to station procedures, and those procedures continue to ensure the requirements of the Offsite Dose Calculation Manual are met, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because no new equipment is being installed and existing equipment is not being operated in a different manner, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no changes to the ODCM will result, and it continues to contain the radiological effluent controls program, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 5

Correct the material composition for the reactor containment sump pumps in UFSAR Table 9.3-3. The shaft material is stainless steel 431, not "432." Include the "SS" designator to be consistent with the format of other materials within this table. Add the impeller material to be "chromium alloyed cast iron." The reactor containment sump pumps were replaced by EWR 91-169. UFSAR change package FN 92-28 (91-SE-MOD-046) was approved for the associated changes. However, "432" was typed as "431," "SS" was omitted, and the line for the impeller material has been deleted. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 6

Correct the component data for the valve pit sump pumps in Table 9.3-3. The original valve pit sump pumps had poor reliability, and required frequent maintenance. Replacement with air operated, self-priming pumps resulted in a significant improvement in reliability. Replacement of the pumps was evaluated and approved under DCP 79-71 and supporting safety evaluation (for Unit 1) and DCP 85-47 and supporting safety evaluation (for Unit 2). When the pumps needed to be replaced by a newer model from the same vendor, EWR 86-279 found no appreciable difference between the model installed by DCP and the newer replacement. The new information requested for the UFSAR is correct, according to vendor tech manual W932-00001, referenced for these pumps in EDS. The air supply for the pumps is instrument air, and therefore a reliable power supply. The air lines to the pumps are equipped with oilers, check valves, and solenoid valves, to ensure dependable pump operation, as well as ensure that failure of the pumps cannot result in water intrusion into the instrument air system. The operators inspect the air supply and the oilers to ensure proper operation of the pumps and the instrument air supply. A main control board annunciator continues to be available to alert the operators to a pump malfunction or water leak exceeding the pump capacity. Since the replacement valve pit sump pumps are installed in the same location, are more reliable, and cannot jeopardize any safety-related equipment, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the instrument air supply line is equipped with check valves and solenoid valves, and without air pressure there is no motive force to lift the water in the sump high enough to cause a water intrusion into the instrument air lines, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 8

Correct the simplified diagrams for the sample system shown on Figure 9.3-2. On sheet 2 of 12, change the second set of High Level Waste Tank lines to Low Level Waste Tank lines. On sheet 7 of 12, change containment pump sample to condensate pump sample. These will make the simplified diagrams consistent with station drawings 11715-FM-89A, sh.2 and 11715-FM-89B, sh.1. No changes to station configuration are involved. These are corrections of errors introduced when the simplified diagrams were put in the UFSAR. Since the proposed changes make the simplified diagrams consistent with the UFSAR text, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only correct minor discrepancies in the simplified diagrams, and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 9

Correct the simplified diagrams for the primary vents and drains system on Figure 9.3-3. On sheet 1 of 5 show valve from HRS pump to sump as an SOV, according to 11715-FM-90C, sh.3. On sheet 2 of 5 add open valve from valve pit pumps to safeguard pumps and show the valves in header to low level liquid waste as shut, according to drawing 11715-FM-90A, sh.1. No changes to station configuration are involved. These are corrections of errors introduced when the simplified diagrams were put in the UFSAR. Since the proposed changes make the simplified diagrams consistent with the UFSAR text, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only correct minor discrepancies in the simplified diagrams, and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-60

Description

North Anna UFSAR Change Request No. FN 99-014

UFSAR Change Request No. FN 99-014 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss civil, structural, and seismic topics at North Anna. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's civil, structural, and seismic topics.

Summary

The following editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub # 1

Revise the following sections to incorporate various administrative changes. These changes correct administrative errors introduced during development and maintenance of the UFSAR as follows:

a. Add reference drawings for the Station Black-out (SBO) Building to Sections 1.2.2 and 1.2, Reference Drawings. The SBO Building is part of a list of structures that includes references to drawings that show general equipment layout, but the reference drawings are not currently identified for the SBO Building.

b. In Section 2.3.4.1, revise the report period for the average wind speed at Richmond. This statement refers to a report period, but the first date in the period was omitted. The correct period is September 16, 1971 to September 15, 1972 as stated in Sections 2.3.5.1 and 11C.4.3.

c. Revise Figure 2.5-3 to show cut section lines E-E, F-F, and G-G which correspond to Figures 2.5-8, 2.5-9, and 2.5-10 respectively. These section lines were part of Figure 2.5-3 in the FSAR but were inadvertently dropped from Revision 0 of the UFSAR.

d. Move the building dynamic analysis description from Section 3.7.3.1.2.2 to Section 3.7.2.3 and move the "g" from the first row of the table to the column headings of the table. The information in Section 3.7.3.1.2.2 is related to the analysis of piping, while the discussion being relocated pertains to the dynamic characteristics of buildings. The discussion of building characteristics was added to the piping information during development of the UFSAR from the response to NRC Comment D3.7.2. It is being relocated to the related information in Section 3.7.2.3.

e. Revise Section 3.7.5 to update the reference to the PSAR and FSAR to the UFSAR, remove the reference to Stone and Webster, and change "current" criteria to "specified" criteria. These changes update the descriptions in the UFSAR to current practices. The PSAR and FSAR have been superseded by the UFSAR and Stone & Webster is no longer responsible for the material specifications. The change to "specified" is editorial only.

Update the description of the containment structural acceptance tests in Section 3.8.2.8.1.8. Containment structural acceptance test reports were completed and furnished to Virginia Power in 1977 for Unit 1 and 1979 for Unit 2.

Change Item Sub # 2

Add a statement in the front of Chapter 2 stating that certain information in this chapter is not intended or expected to be updated. The information on site characteristics in Chapter 2 was included in the UFSAR to support the original plant design bases and assess the suitability of the site for the plant lifetime. In accordance with NEI 98-03, this information does not require updating to reflect minor changes and could potentially be considered HISTORICAL (i.e., not intended or expected to be updated for the life of the plant). However, NEI 98-03 notes that potentially significant changes in the site environs should be evaluated to determine if notification of NRC and appropriate update of the UFSAR are required. Nuclear procedures and programs require information equivalent to parts of Chapter 2 to be gathered and assessed. For example, current demographic information such as population density and distribution is gathered, assessed, and reported in accordance with the station's Emergency Plan, Radiation Protection Program, and implementing procedures. In the past, some of this information has been incorporated into the UFSAR. Therefore, the information in Chapter 2 is not being designated as HISTORICAL, but a statement is being added to clearly document the original intent of the information, the potential for minor differences from the current environs, and the circumstances under which an update would be appropriate.

Change Item Sub # 3

Clarify which body of water the UFSAR is discussing and its description in Table 2.1-2 and Sections 2.4.2.2, 2.4.3, 2.4.8, 2A.2.4.1, 3.8.4.6, and 3.8.4.8. There are several names currently given in the UFSAR for the bodies of water at NAPS. The following definitions are used to clarify these bodies of water:

Service Water Reservoir: The reservoir that contains the spray arrays.

Lake Anna: When referring to the large body of water as a location landmark. Lake Anna is comprised of the North Anna Reservoir and the Waste Heat Treatment Facility.

North Anna Reservoir: The large part of Lake Anna that supplies cooling water for the station.

Waste Heat Treatment Facility: The smaller part of Lake Anna that dissipates waste solution heat from circulating water discharge before the return of this water to the North Anna Reservoir. The Waste Heat Treatment Facility is subdivided into three cooling lagoons that are interconnected by three canals and separated from the North Anna Reservoir by four dikes as described in Section 2.1 and shown in Figure 2A-4.

The names and descriptions above are being substituted for others in the UFSAR to ensure that the bodies of water are accurately and completely described. This change does not alter the technical description or function of these bodies of water.

Change Item Sub # 6

Correct the grammatical, editorial, and spelling errors in the following sections:

a. Change insulation to isolation in Section 2.5.4.3. Isolation was changed to insulation by a typographical error in UFSAR, Revision 0. The compressible material isolates the containment structure from adjacent concrete backfill as explained in Sections 3.8.2.1.2.1 and 3.8.2.7.7.

b. In Section 2A.2.1, add a space between "flood" and "still-water" and change 267.2 to 267.3 to correct typographical errors introduced during the development of UFSAR, Revision 0. The correct flood level at the plant with wind and wave run-up is 267.3 feet as stated in the original submittal of this text and elsewhere in Appendix 2A.

c. In Section 2A.2.5.3, change Elevation 264 to 264.2, to correct a typographical error introduced during the development of UFSAR, Revision 0. The correct probable maximum flood still-water elevation is 264.2 as identified in the original submittal of this text and in the rest of Appendix 2A.

d. In Section 2A.2.7, correct the order of the total wind wave effects values from 2.9 feet and 4.2 feet to 4.2 feet and 2.9 feet. The order of these values was inadvertently transposed. The total wind and wave effects for the intake structure is 4.2 feet and for the plant is 2.9 feet as explained in the preceding paragraphs of Appendix 2A.

e. In Section 2A.2.8, add "the outflow" before the "O" to clarify that the "O" represents the outflow.

f. Remove the repeated words from the first paragraph of Section 3.7.1 to correct a typographical error from the original FSAR.

g. In Section 3.7.2.1, add a "(p)" after modal participation factors and change the P in Equation 3.7-3 to lower case. This change defines the symbol "(p)" and ensures that it is used consistently in lower case in Equations 3.7-3 and 3.7-4.

h. In Section 3.7.2.6.1.7, add the dots above the U's for velocity and acceleration and replace the "+" with a comma in the series of vectors. This change corrects typographical errors introduced during development of the FSAR and UFSAR.

i. In Section 3.7.3.2.2.2, add the second dot above the X in Equation 3.7-43 and add the subscript "i" to the symbol "Rn." This change corrects typographical errors introduced during development of the UFSAR, Revision 0.

j. In the definition of the terms Alh, Alv in Section 3.8.2.5, reverse the order of the words vertical and hoop. The term Alh is the hoop direction and Alv is the vertical. The descriptions are currently reversed (vertical and hoop) from the order of the symbols.

k. In Section 3.8.4.7.5, change the word breech to breach. This change corrects a spelling error. Breach is the correct word/spelling.

l. In Section 3.8.4.8, change the word tow to toe. This change corrects a spelling error. Toe is the correct word/spelling.

m. In Section 3.8.5.4, change building to buildings. This change corrects a grammatical error.

n. Revise Figure 3.8-24 to add P to locations 1A-4A, change P8B to P6B at STA 22+00, and change STA 29+25 to STA 35+50 at P20A & P21B. These changes correct typographical errors incorporated during the implementation of UFSAR Change Request FN 98-051.

Change Item Sub # 7

Revise Table 3.2-1 to incorporate the following administrative changes:

a. Add a reference to the Q-list below the title, and add a new note (renumbering existing notes accordingly) at the end of the table explaining that Table 3.2-1 describes the original design and licensing basis for the listed structures, systems, and components, and referencing the more comprehensive list of components, the Q-list, that has been developed and maintained.

   Table 3.2-1 provides a list of structures, systems, and components designed to seismic and tornado criteria. This table meets a requirement of the Standard Format & Content of Safety Analysis Reports for Nuclear Power Plants, 1972, which states in part that "the SAR should provide a list of all Category I structures, components, and systems to permit a determination to be made as to the general suitability of the classification given and the design approach being applied in the design of these structures."

   However, another more detailed list of components is also maintained. As stated in UFSAR Table 17.2-0, "the Nuclear Design Control Program standards provides the methodology and procedures for determining the quality classification of components. A specific listing of these components is maintained in a document called the "Q-list." As noted in STD-GN-0003, the Q-list was intended to replace the less detailed listings of safety-related components contained or referenced in station documents.

   Because these two lists provide different levels of detail, the classifications given in both may not fully agree. The classifications of individual components in the Q-list have changed as systems have been modified and components have been reclassified based on their individual function. In many cases, Table 3.2-1 classifies general groups of components in a system (e.g., all piping, valve, and supports in the quench spray subsystem). Therefore, changes to an individual component's classification could not be incorporated into Table 3.2-1 without expanding the table to list individual components. Such a list would be unwieldy and inappropriate in the UFSAR. Therefore, Table 3.2-1 has been maintained as a description of the original licensing basis for the systems and components listed, but in general it has not been updated as systems have been modified and individual components in the Q-list have been reclassified. To clarify these differences, a reference to the Q-list is being added after the title and a note is being added to the end of Table 3.2-1 that explains the potential differences between the Q-list and the table and directs users to rely on the Q-list.

b. Add a footnote to each page that designates the sponsor column as historical information, add a note at the end of the table explaining that the sponsor column is not intended or expected to be updated for the life of the plant, and renumber the existing notes and footnotes as needed. In accordance with NEI 98-03, the information in the "Sponsor" column is not intended or expected to be updated for the life of the plant. The column describes the division of responsibility between Westinghouse and Stone & Webster for the original design of designated structures, systems, and components in conjunction with Section 1.4 Identification of Agents and Contractors.

c. Correct the indentation of the Turbine Building, Circulating Water Intake Structure, Casing Cooling Pump House, Service Water Pump House, Service Water Valve House, Service Water Tie-in Vault, Boron Recovery Tank Dikes, Fuel Oil Pump House, and Service Water Pipe Expansion Joint Structure (i.e., aligning each with the Service Building); and remove the words "Service Building (continued)" at the top of page 3.2-6. These structures are independent and not part of the Service Building as is suggested by the indention. They were not indented in the FSAR but were inadvertently indented during development of UFSAR, Revision 0. This is simply a format correction to Table 3.2-1.

d. Remove "all" whenever it appears in the description of systems or components. The use of "all" is a generalization that may not agree with the individual classifications given in the Q-list. Individual components can be reclassified in accordance with the requirements of VPAP-0301 and STD-GN-0003. As discussed in Item a. above, it is not practical to incorporate changes to individual components in Table 3.2-1. Therefore, the word "all" is being removed to preclude potential discrepancies between the general information in Table 3.2-1 and the individual information in the Q-list.

Change Item Sub # 9

Revise Table 3.2-1 to add a reference to Section 5.2.4.1.1 in the Notes column for the containment gaseous and particulate monitors and change monitor to monitors. The containment gaseous and particulate radioactivity monitors are seismically qualified, but some support systems (most notably instrument air) are not. UFSAR Section 5.2.4.1.1 provides an explanation of how the partial seismic qualification affects the plant. This change adds a reference to Section 5.2.4.1.1 and changes monitor to plural.

Change Item Sub # 12

Designate Table 3.5-5 as HISTORICAL and revise Section 3.5.5 to reflect the historic status of Table 3.5-5. Table 3.5-5 was incorporated into UFSAR, Revision 0 from the response to NRC Comment S3.3. In the comment, the NRC requested an evaluation of potential missiles emanating from the failure of tanks and cylinders containing compressed gasses, including an evaluation of operating pressure, vessel location, energy release, and protective measures. The response stated that cylinders are equipped with pressure relief valves to preclude the possibility of excess pressure buildup and secured in racks to prevent them from becoming rocket propelled missiles in the event of localized failures. This response was incorporated into the UFSAR as Section 3.5.5. A table listing operating pressures, maximum energy releases, and locations of compressed gas cylinders and tanks was included with the response. This table was incorporated into the UFSAR as Table 3.5-5.

The Standard Format and Content of Safety Analysis Reports for Nuclear Plants, February, 1972, requires an evaluation of missiles that might be generated from the failure of pressurized components. However, it does not require that a list of compressed gas cylinders be maintained up-to-date in the UFSAR. NRC Comment S3.3 requested the evaluation of missiles from compressed gas cylinders but did not request a list of these cylinders. Therefore, Table 3.5-5 was provided to demonstrate that the analysis requested by Comment S3.3 had been completed. As such, this table was not intended or expected to be updated. Therefore, Table 3.5-5 is being designated HISTORICAL. Editorial changes are being incorporated into Section 3.5-5 to reflect the historical designation of Table 3.5-5.

Change Item Sub # 18

Designate the tables and figures listed below as HISTORICAL and revert Table 3.10-1 to its URSAR, Revision 0 contents. This information is HISTORICAL in accordance with NEI 98-03 guidelines as follows:

a. Tables 3.7-4, 3.7-5, 3.7-6, 3.7-7, and 3.7-8 list information submitted to the NRC that is relevant only to the original licensing proceeding. They were provided in response to NRC Comment S3.74 and subsequently incorporated into UFSAR Revision 0. As described in the response, the tables give the seismic design results for a representative sample (i.e. examples) of both tested and analyzed equipment and structures. Since these tables do not provide an all inclusive list of equipment and structures, they were clearly intended to demonstrate that the seismic design process was acceptable at the time of licensing and not to document the qualifications of individual equipment and structures. Such information is not intended or expected to be updated. Therefore, these tables are being designated HISTORICAL.

b. Tables 3.8-1, 3.8-2, 3.8-3, 3.8-4, 3.8-5, 3.8-6, and 3.8-16 provide the results of preoperational tests.

c. Figures 3.8-30, 3.8-31, 3.8-35, and 3.8-51 through 59 depict the results of preoperational soil and water tests.

d. Table 3.10-1, after reverting to its original FSAR content, lists information submitted to the NRC that is relevant only to the original licensing proceeding. This information was provided in response to NRC Comment S3.31 and subsequently incorporated into UFSAR Revision 0. Table 3.10-1 was not intended to be an all inclusive list of equipment; rather, it was intended to describe the test requirements and results for a representative sample (i.e., examples) of equipment. This information was clearly intended to demonstrate that the seismic testing process was acceptable at the time of licensing, but it was not intended to document the qualifications of individual components. Such information is not intended or expected to be updated. Therefore, this table is being designated HISTORICAL. Because Table 3.10-1 has been revised, it will also be reverted to the content originally submitted.

Change Item Sub # 21

Revise Sections 3.8.1.4.7 and 3.8, References, to update the description of the re-evaluation of masonry walls that was performed in compliance with the requirements of IE Bulletin 80-11 and incorporate a reference to IE Bulletin 80-11. The NRC raised questions about the results of the original IE Bulletin 80-11 re-evaluation of some masonry walls in their letter and SER on 8/12/88. As a result, a more detailed analysis of these walls was performed and submitted to the NRC. This subsequent review was approved by the NRC in an SER on 9/7/89 as documented in Technical Report CE-0030. This change updates the current discussion of the IE Bulletin 80-11 re-evaluation in the UFSAR to reflect the final results as approved by the NRC.

Change Item Sub # 23

Correct the format, numbering, and pagination discrepancies in the following sections:

a. In Section 3.8.2.1.4, correct the table references. These references were inadvertently reversed during development of UFSAR, Revision 0.

b. Renumber the sub-sections of Section 3.8.2.7.6. These sub-sections were incorrectly numbered during implementation of UFSAR Change Request FN 93-21. This change numbers the sub-sections as previously approved.

c. Add the page that shows wing wall sections A-A & B-B as Figure 3.8-1 (Sheet 3 of 3) and renumber the first two sheets accordingly. The sheet showing Sections A-A & B-B was submitted to the NRC along with the Sheets 1 & 2 from Figure 3.8-1 in response to NRC Comment S3.69 but was inadvertently omitted from UFSAR Revision 0. Sections A-A & B-B are referenced on Sheets 1 & 2 of Figure 3.8-1 and in Section 3.8.1.1.7.

d. Remove "(SHEET 1)" from the title of Figure 3.8-21. There is only one sheet to Figure 3.8-21.

e. Change "EQUIPMENT" to "PERSONNEL" and remove "(SHEET 2)" from the title of Figure 3.8-23. This figure has only one page and shows details of the personnel hatch, not the equipment hatch, as evidenced by drawing 11715-FC-15Q and section D-D of Figure 3.8-23. The figure has been mislabeled since the FSAR but was clearly intended to depict the personnel hatch as stated in the text of Section 3.8.2.6.2.

Change Item Sub # 24

Remove Table 3.8-19 and the reference to this table in Section 3.8.2.7.6, Protective Coatings (Paints). This table lists coatings, by product name and model number, that are acceptable for use in containment. However, the table is not up-to-date and will require constant updating to maintain accurately due to new coatings being developed and old coatings being taken out of service. Table 3.8-19 was added by Virginia Power by FN 84-22, but it is not required by the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants, February 1972, or any other licensing commitments. The qualification requirements for containment coatings are also specified in UFSAR Section 3.8.2.7.6.2.5. Therefore, this table is being removed as excessive detail.

Change Item Sub # 28

In Section 3.8.4.8, clearly state that Service Water Reservoir loss-monitoring is required on a semiannual basis by technical specification and to simplify the introduction to the loss-monitoring procedure to say "a procedure for evaluating Service Water Reservoir losses." This section currently states that loss-monitoring will be required by Technical Specifications. This change updates the UFSAR to reflect that the requirement for Service Water Reservoir loss-monitoring on a semiannual basis is contained in Technical Specification 4.7.5.2. The change to the introduction is editorial only.

Change Item Sub # 30

Incorporate the following clarifications in Table 3.8-15:

a. For settlement point 113R, add Main Steam Valve House to the location. The Main Steam Valve House/Quench Spray Pump House is a common structure. This change is being made to clarify the location and eliminate confusion with the location given in Section 3.8.5 and Figure 3.8-59 of the UFSAR and in Table 3.7-5 of the Technical Specifications.

b. Add a footnote stating that settlement monitoring points 114, 115, 116, and 117 were relocated, renumbered as 314, 315, 316 and 317 respectively, and baseline elevations were assigned to the renumbered points. Settlement points 114, 115, 116, and 117 were replaced by points 314, 315, 316 and 317 in Table 3.8-15 by UFSAR Change Request FN 93-040 and Safety Evaluation 93-SE-OT-006. These points were relocated to the outside of the Service Building foundation as recommended by Technical Report No. CE-0019 due to obstructions and renumbered to differentiate them from the original location (e.g., 114 was relocated to 314). The new points are monitored to the same requirements as the original points. This note is being added to reconcile the differences in mark number designations in this table and in Technical Specification Table 3.7-5.

c. Add a footnote indicating the settlement points that are monitored for information only and do not have an allowable movement addressed in Technical Specifications. This note is being added to clearly designate the mark numbers that do not appear on Technical Specification Table 3.7-5.

Change Item Sub # 34

Designate Sections 3.9.1.2.4, 3.9.1.2.6, 3.9.3.3.1, 3.9.3.3.2, and Figure 3.9-1 as HISTORICAL information and change the verb tense to past in Section 3.9.1.2.4. These sections describe preoperational tests or comparisons with other plants to support original plant licensing. This is historical information under NEI 98-03 guidelines. The verb tense is being changed to reflect the historical nature of the information.

Change Item Sub # 36

Designate the end of Section 3.10.2 as HISTORICAL except for the paragraph beginning with "Control Storage Batteries . . . " which should be relocated to just before the start of the historic information. With the exception of the paragraph being moved, this information is HISTORICAL in accordance with NEI 98-03 guidelines in that it is a list of references submitted to the NRC that is relevant only to the original licensing proceeding. The references were provided in response to NRC Comment S3.75 which requested additional information in support of their Site Seismic Audit. As requested, the information documented the seismic qualifications of specified equipment. This documentation consisted of seismic analyses or test results as applicable. It was provided to demonstrate that the equipment qualification process was acceptable. As such, it is not intended or expected to be updated and is being designated HISTORICAL.

Change Item Sub # 37

Revert Table 3.11-4 to its contents from UFSAR, Revision 0, designate the table HISTORICAL, and remove the obsolete references from Section 3.11, References. In accordance with NEI 98-03, Table 3.11-4 is HISTORICAL in that it lists information submitted to the NRC that is relevant only to the original licensing proceeding. The table was provided in response to NRC Comment S3.70 which requested qualification test program information for at least one item in each group of Class 1E equipment listed. As requested, the table describes the qualification requirements and test results for a representative sample of equipment. Since an all inclusive list of equipment was not requested, this information was clearly intended to demonstrate that the seismic qualification process was acceptable at the time of licensing and not to document the qualifications of individual equipment. This type of information is HISTORICAL and not expected to be updated for the life of the plant. A previous change to the table implies that it is being kept up-to-date. Therefore, the table is being reverted to its content from UFSAR, Revision 0 and designated HISTORICAL.

Some of the references in Section 3.11 will be deleted because they are obsolete or will become so when Table 3.11-4 is returned to its Revision 0 contents. Reference 7 was made obsolete by an equipment modification which was incorporated by UFSAR Change Request FN 85-23. References 10, 11, 13, 14, 40, and 41 were added by FN 90-66 during a revision of Table 3.11-4 and will become obsolete when Table 3.11-4 is reverted. References 28 and 29 were revised by FN 90-66 and will be reverted with Table 3.11-4. The note at the end of this section was made incorrect when references 12, 13, and 14 were updated by FN 90-66.

Change Item Sub # 38

Revise Appendix 3E to incorporate the following administrative changes:

a. Add a statement describing the information in Appendix 3E as a one time report that is not intended or expected to be updated. Appendix 3E and its attachments contain reports on geotechnical investigations and soil tests that were completed to address NRC concerns over settlement of the Service Water Pump House and Service Water Reservoir. The reports in Appendix 3E were submitted to the NRC at different times and incorporated in appendices or supplements to the FSAR. During development of the UFSAR, the different reports were combined into one appendix and five attachments. Since these technical reports describe the results of investigations, they are not intended or expected to be revised for the life of the plant. This includes the descriptions of the Service Water Pump House and Service Water Reservoir, because current descriptions and operating requirements are maintained in Section 3.8. This statement is being added to Appendix 3E to clarify that the information in Appendix 3E is not intended or expected to be updated.

b. Correct the date of Attachment 3 on page 3E-1. The correct report date of June 21, 1976, is clearly shown on Attachment 3.

c. Update Table 3E-8 to reflect changes submitted in Amendment 49. These changes were submitted as part of Amendment 49 to the license application but inadvertently omitted during development of UFSAR, Revision 0.

d. Add omitted sample sheets to the end of Attachment 2. These two sample sheets were submitted to the NRC as part of Amendment 49 but were inadvertently omitted from UFSAR, Revision 0.

e. Change the reference to the March 1976 report in Attachment 4 from "Section 3.8" to "FSAR Amendment 49 Response to P3.8." Attachment 4 refers to "previous reports submitted in December 1975 and March 1976 (Section 3E.2 and 3.8)." UFSAR Section 3.8 does not contain the March 1976 report as indicated by this reference. The March 1976 report was the initial response to NRC Comment P3.8 that was submitted as part of Amendment 49. Therefore, the reference is being corrected to "FSAR Amendment 49 response to P3.8."

f. Revise the title of Figure 8 in Attachment 5 to reflect the data presented. The description of Figure 8, Undrained Shear Strength vs. Elevation, is being added to the title for clarity.

g. Remove the sheet numbers from Figures 11 & 12 in Attachment 5. There is only one sheet for each figure so sheet numbers is unnecessary.

h. Remove Attachment 6 from the UFSAR. Attachment 6 was added to Appendix 3E by UFSAR Change Request FN 87-28. However, this report was generated to support Service Water Reservoir improvements and not to address the subject of Appendix 3E, Service Water Pump House settlement. Therefore, Attachment 6 should be removed from Appendix 3E. Since the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants, February 1972, does not require such reports to be included in the FSAR, Attachment 6 is being removed from the UFSAR.

Change Item Sub # 40

Revise Section 5.2.3.3.2 to remove the statement that generic stress reports are filed at the site. UFSAR Section 17.2.17 and Table 17.2.0 describe the requirements for the Nuclear Quality Assurance program. They state that quality records, which include the generic stress reports, may also be stored at Innsbrook or at other approved offsite facilities. Therefore, this statement is being removed because it is an incorrect restriction on the file location of the stress reports.

Change Item Sub # 41

Change the verb tense to past and designate Sections 5.5.1.4.1, 5.5.1.4.2, and 5.5.1.4.3 as HISTORICAL. These sections describe the welding process and qualification tests associated for the reactor coolant pump casings. In accordance with NEI 98-03, this information is HISTORICAL and is not intended or expected to be updated for the life of the plant.

Change Item Sub # 45

Revise Table 9.6-1 to reflect that the loads in the table were not taken solely from the TER and make editorial corrections. The Fuel Building Trolley loads were not added to the UFSAR from the TER as indicated in Note an of Table 9.6-1. It was added in accordance with Engineering Transmittal No. CCE-98-0008 by UFSAR Change Request FN 98-029 and Safety Evaluation 98-SE-OT-34. Note a is being revised to reflect that a subsequent evaluation was performed. In Note h, Design Change is being changed to lower case letters because the modification was completed under EWR 89-384 and not a DCP.

Summary:

The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub # 4

Revise Section 2.4 to incorporate the NRC approved changes to the probable maximum flood analysis from Appendix 2A, and remove references to the test flood from Section 2.4 and Appendix 2A.

This change replaces the original probable maximum flood analysis in Section 2.4 with the revised probable maximum flood analysis in Appendix 2A. Section 2.4 describes in part the analysis of the probable maximum flood for the site. During licensing, the original probable maximum flood analysis was determined to be inconsistent with the observed behavior of Lake Anna since its filling. A revised analysis of the probable maximum flood was performed and incorporated into the FSAR as Appendix J (current UFSAR Appendix 2A). The revised analysis was reviewed and approved by the NRC prior to licensing as described in Supplement 2 of the Safety Evaluation Report for North Anna Power Station. However, the discussion of the probable maximum flood in Section 2.4 was only partially updated to reflect the revised analysis. As a result, Section 2.4 contains information from the original probable maximum flood analysis that was superseded by the revised analysis in Appendix 2A.

This change also replaces the test flood with the revised probable maximum flood in Section 2.4 and removes the reference to the test flood from Appendix 2A. Because the peak inflow from the original probable maximum flood was considered low compared to elsewhere in the country, Section 2.4 included an analysis of a postulated test flood to demonstrate the conservatism in the design of the dam spillway. The test flood had a higher peak inflow than the original probable maximum flood, and as a result, a higher peak flood level and outflow. The revised probable maximum flood resulted in a higher peak inflow, flood level, and outflow than the postulated test flood. Therefore, the discussion of the test flood is no longer needed to demonstrate the conservatism in the design of the dam spillway. While the test flood is referenced in Appendix 2A, it is not germane to the revised probable maximum flood analysis. To prevent confusion with other analyzed flood levels, including the standard project flood and the probable maximum flood, the test flood is being replaced by the revised probable maximum flood.

The proposed changes update the UFSAR to replace information superseded by the revised probable maximum flood analysis. This revised analysis was reviewed and approved by the NRC in Supplement 2 of the Safety Evaluation Report for North Anna Power Station, prior to licensing. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 5

Revise Section 2.4.8 to clearly state that the earth dikes that enclose the Waste Heat Treatment Facility have a minimum crest width of 20 feet and a typical side slope ratio of 2.0 to 1. As shown in UFSAR Appendix 2A, Attachment 4, Figure C and on controlled drawings 11715-FY-312A, 11715-FH-7A, and 11715-FH-9A, the width of the crests and the side slope ratios vary between the dikes that enclose the Waste Heat Treatment Facility. The correct description of the dikes is contained in Appendix 2A, the reanalysis of the probable maximum flood, which was reviewed and approved by the NRC as discussed in Sub # 4. This reanalysis superseded the original analysis of the probable maximum flood in Section 2.4. Therefore, the description of the dikes was also superseded by the description in Appendix 2A. This change simply updates the UFSAR to reflect the more complete description.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve updating the description of the facility in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 8

Revise Table 3.2-1 to add the auxiliary feedwater pump house with a seismic criteria of "I" and a tornado criteria of "T" and remove the auxiliary steam generator feed pump cubicles from Note 3. Table 3.2-1 provides a list of structures that are designed to seismic and tornado criteria but does not include the auxiliary feedwater pump house. During plant final design, the auxiliary feedwater pumps were located in an independent structure, the auxiliary feedwater pump house, instead of in auxiliary steam generator feed pump cubicles in the main steam valve house as described in the PSAR. However, the auxiliary feedwater pump house was not added to Table 3.2-1 in the FSAR when this change was made. Section 10.4.3 of the FSAR clearly states that the pumps, drives, piping, etc. of the auxiliary feedwater system have been designed to Seismic Class I criteria and that the auxiliary feedwater pumps are located in the auxiliary feedwater pump house, a tornado missile-protected enclosure. Calculation 11715-BK-5AS confirms that the auxiliary feedwater pump house is a seismically designed structure. Drawings 11715-FC-12B, 12050-FC-12A, and 12050-FC-12B show that the thickness and reinforcement of the walls and roof provide tornado missile protection in accordance with the criteria in Specification NAS-104. Therefore, the auxiliary feedwater pump house is being added to Table 3.2-1 as a seismically designed structure that provides tornado missile protection. The remaining reference to the auxiliary steam generator feed pump cubicles is also being removed from Note 3.

These changes simply update the UFSAR by adding a structure to a list of structures meeting seismic and tornado criteria. This structure was clearly intended and designed to meet seismic and tornado criteria as described elsewhere in the UFSAR. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve updating the list of structures meeting seismic and tornado criteria in the UFSAR and do not involve physical changes to the facility, the manner in which the facility is operated, or the classification of any structures, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 10

Revise Sections 3.3.2 and 3.5.4 to clarify that above-grade tornado-resistant structures have at least 2-foot thick heavily reinforced concrete, describe the typical reinforcement, and note that other combinations of concrete thickness and reinforcement that provide the same protection are acceptable. Tornado resistant structures do not all have the same configuration. Structures designed to withstand the tornado loading, including tornado generated missiles, specified in the UFSAR were designed to satisfy the criteria contained in construction specification NAS-104. This specification states that a minimum of two feet of reinforced concrete is required to prevent perforation by the postulated tornado missile. It further describes the minimum steel reinforcement required for two-foot thick concrete and for other concrete thickness. These NAS-104 requirements can be met using different combinations of concrete thickness and reinforcement bar size and spacing. For example, a two-foot thick roof slab can be reinforced with N9 bars on 6-inch centers or N8 bars on 5-inch centers as long as the minimum steel area of 1.85 sq. in. is provided.

This change updates the UFSAR to clearly describe the allowable variations in tornado-resistant structures but does not alter the structures or the design requirements described in the UFSAR. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve clarifying the general description of the structures in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 11

Change the description of the control rod drive missile shield in Section 3.5.3 to a 20-inch thick concrete slab with 1-inch thick steel facing. The configuration of the control rod drive missile shields was altered during construction as documented on controlled drawing 11715-FS-14W. This drawing shows that the missile shields have a 1-inch thick steel plate and 20-inch thick concrete slab. As shown in calculations 11715/12050-259N, 11715-DD-66 and 11715-DD-75, the revised design exceeds the minimum dimensions needed to provide the required missile protection. The calculations also show that the increase in steel thickness (from 1/4 to 1 inch) more than offsets the decrease in concrete thickness (from 24 to 20 inches) resulting in increased resistance to the postulated control rod drive missile. Therefore, this change updates the UFSAR to correctly describe the missile shields, but does not alter the ability of the shields to perform their design function as documented in the supporting calculations.

The proposed changes only update the facility as described in the UFSAR. As documented in the supporting calculations, the revised design provides missile protection that meets or exceeds that provided by the original design. Since there is no impact on the performance of the safety-related equipment or changes to procedures, these changes do not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because only the physical description of the missile shield is changed, the manner in which the facility is operated is not changed, so there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 13

Update Sections 3.7.1 and 3.7.2 to clarify that the time-history method of analysis is an acceptable method for developing amplified response spectra (ARS) add a new Section 3.7.2.5 describing how and when this method has been used, and incorporate minor editorial changes, including renumbering subsequent sections as needed. The time history method of analysis is the method for developing ARS generally accepted by the NRC as described in NUREG-0800. For North Anna, in-structure ARS was originally developed by the frequency response method. During licensing, the then AEC requested evidence of conservatism in ARS developed by the frequency response method by comparison to ARS developed by the time history method of analysis. Appendix 3B contains this comparison which demonstrated sufficient conservatism in the in-structure ARS developed by the frequency response method.

Subsequent to licensing, the time history method of analysis has continued to be used to develop ARS for North Anna structures. As discussed in UFSAR Section 3.7.3.1.1, ASME Code Case N-411 damping values were approved for use in piping analyses. The in-structure ARS for Code Case N-411 damping was developed by the time history method of analysis consistent with the description provided in Appendix 3B. The time history method of analysis was also used to develop ARS as part of the resolution of Unresolved Safety Issue (USI) A-46 utilizing state-of-the-art methods in compliance with current regulatory requirements.

The time history method of analysis is a NRC preferred method for developing in-structure ARS. This change simply updates the UFSAR to describe when and how this method has been applied. It does not alter an approved method of analysis in that the time history method was previously used, at NRC (AEC) request, to document the conservatism of ARS developed by the frequency response method. Since the proposed changes do not involve physical changes to the facility or procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. No analyses are affected by this change, consequently, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 14

Update Section 3.7.2.6 to reflect that seismic analysis may be performed using other structural computer codes than those listed in Sections 3.7.2.6.1 and 3.7.2.6.2 provided that these computer codes are verified to meet applicable NRC requirements. Computer codes used to perform seismic calculations are controlled by administrative procedure VPAP-0306, Station Software Control. This procedure includes requirements for ensuring conformance with applicable NRC regulations and industry guidelines, validating computer codes before implementation, and performing safety evaluations. As a result, computer codes other than those listed in the UFSAR may be used to perform seismic analysis. The computer codes discussed in Section 3.7.2.6 were provided in response to NRC Comments S3.16, S3.17, S3.25, and S3.42. However, this information was not required by The Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants, February 1972. This change simply updates the UFSAR to reflect that other computer codes may be applied in accordance with administrative procedures and NRC regulations. A similar statement was incorporated into Section 3.7.3.4 by UFSAR Change Request FN 95-013 and Safety Evaluation 95-SE-OT-18.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only add a description of procedural controls for computer codes used for seismic analysis to the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since the changes only add a description of the procedural controls for computer codes, no analyses or setpoints are affected and the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 15

Update Sections 3.2.2, 3.7.3.1.1, 5.2.1.2, and 5.5.3.1 to describe that a reanalysis of the pressurizer surge line to account for the effect of thermal stratification and striping was performed in accordance with the requirements of ASME Boiler and Pressure Vessel Code, Section III, 1986 and addenda through 1987 incorporating high cycle fatigue as required by NRC Bulletin 88-11, and add a reference to NRC Bulletin No. 88-11 to Section 3.7, References. NRC Bulletin 88-11 identified a previously unanalyzed condition and requested an analysis of this condition using the latest ASME code. This condition was analyzed and the pressurizer surge line integrity was reconfirmed. Virginia Power informed the NRC of the methods used for this analysis and the results in letters, serial numbers 89-006A and 006C. In a letter dated 3-13-92, the NRC concluded that the requirements of the bulletin were adequately addressed and the results were acceptable. This change does not physically change the facility or affect the operation of any equipment. The change only updates the UFSAR to document the analysis of loading conditions requested by NRC Bulletin 88-11.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve adding a description of an NRC requested analysis in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since the analysis confirmed the integrity of the system and no setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 16

Revise Section 3.7.3.1.2.4 to describe the square root of the sum of squares method of combining moments as an alternative to the currently described method. The UFSAR currently describes a modified square root of the sum of squares method of combining moments that was used during the original design of the facility. This change adds the square root of the sum of squares method of combining moments as an approved alternative. The square root of the sum of squares method has been approved by the NRC as an acceptable method in Regulatory Guide 1.92 and in NRC Bulletin 79-07.

This change also incorporates the following administrative changes:

a. Number the existing method of combining moments and reformat the subsequent paragraphs accordingly. The existing method is being numbered and reformatted to differentiate it from the alternate method that is being added.

b. Add subscripts x, y, and z to the "M" for the moments in Equation 3.7-32. The subscripts are being added so the equations for the moments to depict the axis of the moment described by the calculation and to agree with the nearby figure depicting the moments.

c. Remove Stone & Webster from the description of the existing method. Stone & Webster is being removed to eliminate an implied restriction that the procedures are only used by Stone & Webster. These procedures are also used by Virginia Power

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve adding the description of an NRC approved method in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since the method for combining moments that is being added has been approved by the NRC, no analyses or setpoints are affected and the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 17

Clarify the ambiguous or unclear information in the following UFSAR sections:

a. In Figure 2.4-15, correct the roadway elevation to 265 and remove the scale on the left side. The crest of the dam and the spillway bridge are clearly documented at Elevation 265 in Sections 2.4.1.1, 2.4.3, and 2A.3 and in Figure 2.4.2. The elevation is being corrected to prevent confusion. The scale is not needed and conflicts with the elevations given on the figure.

b. In Section 2.5.5, clarify that the channel has cut slopes of 3H: 1V that steepen to 2H: 1V at the screenwell and a maximum depth of 50 feet below the surrounding terrain. This change eliminates potential confusion with the description of the intake channel in Section 2.5.5 and with Figure 2.5-9 and controlled drawings 11715-FY-1D, 11715-FY-1E, and 11715-FY-1F.

c. In Table 3.7-3, clarify that dynamic response spectra may be used to analyze small diameter lines and not just simplified dynamic analyses. The more rigorous dynamic response spectra analysis (i.e., computer stress analysis) can also be used to analyze smaller diameter lines and not just the simplified dynamic analyses method as currently indicated in Table 3.7-3.

d. In Section 3.8.1.1.5, change mechanical equipment rooms to "air-conditioning" equipment rooms. This change avoids confusion with the mechanical equipment room located on the second floor and is consistent with the designation used in the first paragraph, Table 3.2-1, and controlled drawings 11715-FM-11C and 11715-FA-1E.

The proposed changes update the UFSAR to clarify ambiguous or unclear information. Since these changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the monitoring program in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 19

Revise Sections 3.8.1.1.1, 3.8.1.1.5, and 3.8.1.1.6 to clarify that the buildings have a single-ply, mechanically attached, membrane roofing system. Because of deterioration, the original built-up roofing on North Anna buildings have been replaced with single-ply membrane roofing. The new membrane roof was ballasted on buildings with concrete decking and mechanically attached on buildings with steel decking. The Quench Spray, Service, and Decontamination Building roofs were mechanically attached in accordance with EWR 91-029, EWR 90-001, and DCP 93-145 respectively. These modifications were found acceptable by Safety Evaluations 91-SE-MOD-027, 90-SE-MOD-008, and 93-SE-MOD-041 respectively. This change corrects minor discrepancies in the description of how the roofs on these buildings were attached.

The proposed changes revise the URSAR to reflect approved modifications. These modifications were review and approved by Safety Evaluations 91-SE-MOD-027, 90-SE-MOD-008, and 93-SE-MOD-041 respectively. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 20

Revise Sections 3.8.1.2 and 3.8.1.2.1 to note that the original design and construction of the seismic Class I structures listed conformed to the codes and specifications described, but subsequent modifications or reanalysis of these structures may have been performed using later industry codes and standards in accordance with administrative procedures and the design control program. Section 3.8.1.2 describes the industry codes and standards applied to the original design and construction of the facility, while Section 3.8.1.2.1 describes the industry codes and standards applied during the Service Water Reservoir modification. However, subsequent modifications or reanalyses may have applied more recent versions of these industry codes and standards. Control of industry codes and standards is provided by Nuclear Design Control Program procedure NDCM 3.1, Design Inputs, in accordance with 10 CFR 50 Appendix B. NDCM 3.1 requires that design inputs, which include industry codes and standards, be identified, documented, reviewed, and approved. Additionally, changes to specified requirements such as station design bases and the bases for those changes must be identified, approved, documented, and controlled. This change clarifies the means by which revised and updated industry codes and standards are controlled.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve adding a description of administrative controls in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since the changes only add a description of the administrative controls for industry codes, no analyses or setpoints are affected and the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 22

Revise Section 3.8.2.1.4.1 to incorporate the following:

a. Change "will be used" to "may be used" in the description of the test channels. There are no requirements for the channels to be used to locate leak sources, and other procedures are available. Therefore, the channels may be used but will not necessarily be used in locating the source of leakage.

b. Remove the requirement to use halogen gas and a halogen gas detector from the test method for bolted closures. There are no requirements to use a halogen gas and detector to identify leaks in bolted closures. While this has been a practical method in the past, current environmental awareness makes this approach no longer desirable. In accordance with UFSAR Section 6.2.7.4, the inspection methods that could be used to specifically identify the source of leakage into the containment as those specified by ANSI/ANS-56.8-1994, Containment System Leakage Testing Requirements, for Type B and Type C leak-test methods. In addition, soap bubble testing and visual observation could be used. The option of using soap bubble testing and visual observations existed in the FSAR, while ANSI/ANS-56.8-1994 replaced the original 10 CFR 50, Appendix J requirement in accordance with UFSAR Change Request FN 96-011 and safety evaluation 95-SE-OT-36. Therefore, the requirement to use a halogen gas and detector can be removed.

The proposed changes remove overly restrictive statements from test descriptions in the UFSAR in accordance with procedures described elsewhere in the UFSAR. Since these changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only clarify the description of tests in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 25

In section 3.8.3.5, change the number of locations where the head of water within the blanket drain is monitored from four to five. A fifth piezometer was installed in the blanket drain by DCP 98-005 as documented in the Report of Installation of Standpipe Piezometers, North Anna Main Dam, North Anna Power Station Units 1 and 2. The addition of piezometers was previously evaluated and approved by safety evaluation 98-SE-MOD-27. Safety evaluation 98-SE-MOD-27 covers this change. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 26

Update section 3.8.4.5.3 to fully describe the structures that are monitored for settlement in accordance with the Technical Specifications and remove the description of the number of years that settlement has been monitored. This section does not completely and accurately describe the structures that are monitored for settlement. The reservoir dike spray array piping and other Category I structures were deleted from Table 3.7-5 of the Technical Specifications by Amendment Nos. 167 (Unit 1) and 147 (Unit 2) as approved by NRC SER and by Safety Evaluation 89-SE-OT-073. The remaining structures that are monitored are being fully described in the UFSAR for clarity and completeness since Table 3.7-5 of the Technical Specification does require them to be monitored. The statement describing the number of years that equipment has been monitored is being replaced with the date when monitoring began to avoid the need for future UFSAR revisions as the number of years increases. This change updates the UFSAR to reflect changes incorporated in the Technical Specifications by Amendment Nos. 167 (Unit 1) and 147 (Unit 2) as approved by NRC SER and by Safety Evaluation 89-SE-OT-073. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 27

Revise the description of Service Water Reservoir monitoring in Section 3.8.4.7.7 to incorporate previously approved and editorial changes as follows:

a. Remove the reference to dike alignment monitoring. Dike alignment was removed from the monitoring program in accordance with the Report on Monitoring of Settlement and Groundwater Level at Service Water Reservoir, North Anna Power Station Units 1 and 2, February, 1983. This report concluded that horizontal movement of the dike was almost undetectable and recommended deletion of this part of the monitoring program to eliminate distractions from meaningful data. The NRC reviewed and approved this report as documented by the transmittal letter for Amendment Nos. 57 (Unit 1) and 39 (Unit 2) of the Technical Specifications. This change was evaluated and approved by the Safety Evaluation for Technical Specification Change Request No. 92 (Unit1) and 79 (Unit 2) and incorporated into Table 3.8-12 by change request FN 84-18 but not this section.

b. Remove the reference to transition filter drain monitoring. The piezometers in the transition filter drain are no longer monitored because the ground water level never rose to their elevation as documented in the Report on Initial Inservice Inspection of Service Water Reservoir, September 1982. Other piezometers, installed in soil beneath the drains, are currently monitored to determine seepage from the reservoir. This change was also discussed in the February 1983, Report on Monitoring of Settlement and Groundwater Level at Service Water Reservoir. The February 1983 report was approved by the NRC in the transmittal letter for Technical Specification Amendment Nos. 57 and 39.

c. Remove the description of pore water pressure monitoring "at the contact of the dike embankment with the foundation." The pore water pressure is monitored at various locations and not just at the contact of the dike embankment with the foundation. However, the current description implies that pore water pressure is only monitored at the foundation. Therefore, this description should be revised to eliminate this unintentionally narrow and incomplete description.

Since these changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the monitoring program in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 29

Revise Table 3.8-12 as described below to update the description of the monitoring program for the main dam.

a. Update the test frequencies to clearly describe that testing will be performed when the reservoir level exceeds Elevation 255. This requirement was specified in the FSAR for the drainage collector system and relief wells, and it also applies to the other monitored items. Such testing meets requirements of Regulatory Guide 1.127 for the inspection of water-control structures, a licensing commitment. The requirement for checking the alignment-settlement markers at Elevations 240, 245, and 250 is also being removed because it applied only to the initial filling of the reservoir and is obsolete.

b. Remove the references to specific test equipment. The references to "soil test no. DR 760-A" and "Slope Indicator Co. Model No. 51411" are being removed because they describe the brand name and model number of test instruments that are no longer used. These instruments were inadvertently included in Table 3.8-12 when it was developed. However, other instruments are also acceptable as documented the Second Periodic Inspection Report, North Anna Hydroelectric Project, Technical Report No. CE-0034, and in the case of the relief wells, Table 3.8-12. Therefore, there are no requirements to use only this test instrument. This incorrect and inappropriate detail is being removed to eliminate discrepancies with equipment actually used.

c. Replace the word indicated with indicator. This change is administrative in that it corrects a misspelled word.

The proposed changes update the description of the main dam monitoring program to clarify test frequencies and remove excessive details. Since these changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the main dam monitoring program in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 31

Correct the discrepancies in the depictions of the structure, systems, or components in the following figures.

a. Update the location of the construction joint on Figure 3.8-4. This figure shows details of the containment dome to cylinder junction, including the location of the last construction joint in the cylinder. However, controlled drawing 11715-FC-15S indicates that this construction joint is actually located 21" higher than is currently shown on Figure 3.8-4. The revision record on drawing 11715-FC-15S states that the location of the construction joint was revised per E&DCR 4091-1 on 3/12/73. Structural integrity was maintained as verified by the containment structural acceptance tests. This change updates UFSAR Figure 3.8-4 to reflect the as-built position of the construction joint.

b. Correct the stirrup spacing in Figure 3.8-20 from 8" OC to 10" OC near the bottom of section line A-A. This figure shows reinforcing details of the equipment access hatch, including stirrup spacing of 8" for approximately three quarters of the quadrant and 10" for the last quarter. However, controlled drawing 11715-FC-15M shows stirrup spacing of 10" for the first and last quarters of the quadrant and 8" for the middle half. The revision record of drawing 11715-FC-15M does not indicate that changes were made to this spacing. Figure 3.8-4 also has separate dimension lines for the first and last quarters indicating that different spacing was expected for those quarters. Therefore, the 8" spacing currently indicated on figure 3.8-20 was concluded to be a typographical error from the FSAR. Structural integrity was maintained as verified by the containment structural acceptance tests. This change simply corrects this spacing to the 10" spacing indicated on the controlled drawing.

c. Add a dashed line to Figure 3.8-25 representing the slope of the embankment core section, and reposition the dimension line to coincide with the end of the dashed line. This figure depicts a typical cross section for the central section of the main dam, but does not completely describe the location of the embankment core section. Controlled drawing 11715-FH-1E uses a dashed line to depict the location of the embankment core section. This dashed line is not shown on Figure 3.8-25. However, the correct position and slope of this line is shown on Figure 3.8-25 by the existing 1 to 1 slope label. This change simply completes Figure 3.8-25 by adding the dashed line to in the position already indicated by the existing slope label. The dimension line on this figure is also being shifted to align it with the end of the dashed lined as shown on drawing 11715-FH-1E.

The proposed changes incorporate minor updates to supporting figures in the UFSAR. The design of the reactor containment was subsequently verified by the containment structural integrity tests. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes did not compromise containment integrity and the manner in which the facility is operated was not changed, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 32

Correct the soil stiffness values in Figures 3.8-38 and 3.8-39. This change corrects minor differences between the soil stiffness values in Figures 3.8-38 and 3.8-39 and those in Calculation 12050-NP(B)-094-X9. The figures describe the NUPIPE model used to compute the stress from differential settlement in the service water piping. They were provided in the response to NRC Comment S2.22. The calculation states that it maintains consistency with this response. However, minor differences exist between the soil stiffness values in the calculation and the figures. These differences do not affect the results of the analysis. These differences are being corrected to ensure consistency between the UFSAR and the supporting calculation of record.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only correct figures in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 33

Update Figure 3.8-42 to reflect approved changes in the Service Water Pump House settlement analysis. Table 3.8-42 describes the mathematical model of the service water lines. This model was used to analyze the impact of Service Water Pump House settlement on the service water lines. The model was revised along with calculation 11715-NP(B)-120-X9 in support of Technical Specification Amendment Nos. 167 (Unit 1) and 147 (Unit 2). Amendments 167/147 were evaluated and approved by the NRC's SER dated October 5, 1992 and by Safety Evaluation 89-SE-OT-073. This change updates the UFSAR figure to reflect the revisions to the model. These changes were found acceptable by the NRC's SER for Technical Specification Amendment Nos. 167 and 147 and by Safety Evaluation 89-SE-OT-073. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 35

Revise Sections 3.10.1, 3.10.2, and 3.10 References as follows:

a. Change the description of the seismic qualification for the main coolant loop RTDs, and delete Reference 8, the Westinghouse seismic qualification report for the original main coolant loop RTDs. The original RTDs were replaced by DCPs 81-54A and 81-54B with RTDs that were seismically qualified by type test to the requirements of IEEE 344-1975. The safety evaluation of this replacement was an integral part of the DCP and determined that the replacement RTDs did not change the operation of the plant and did not involve an unreviewed safety question. Reference 8 is being removed because it is no longer applicable after this change.

b. Incorporate a statement that IEEE 344-1975 and IEEE 344-1987 may be used for seismic qualification of electrical equipment in Sections 3.10.1 and 3.10.2. The more current industry codes IEEE 344-1975 and IEEE 344-1987 have been endorsed by the NRC in Regulatory Guides 1.100 Revision 1 and 1.100 Revision 2 respectively as standards that can be followed for seismic analysis or testing of electrical components. These codes are approved for use at Virginia Power by Technical Report No. CE-0076, Revision 0 and administrative procedure ENAP-0020. Additionally, several locations in the UFSAR note that equipment is seismically qualified in accordance with IEEE 344-1975.

The proposed changes update the UFSAR to reflect approved modifications. The safety evaluation sections of DCPs 81-54A and 81-54B evaluated these modifications and found them acceptable. Accordingly, the changes from the modifications will not be considered further in this safety evaluation.

The proposed changes also add a description of an alternate method of seismic analysis or testing of electrical components. Since incorporating a description of this method does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve adding a description of an alternate analysis method to the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since the methods being added have been approved by the NRC for verifying the adequacy of the seismic design of electric equipment, no analyses or setpoints are affected and the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 39

Revise Section 5.2.1.2 to remove "Unit 1 Replacement Steam Generator" from the description of the fatigue strength factor assigned to the weld root notch. Now that the steam generators for both units have been replaced, this statement applies to both units. This statement was added when the Unit 1 steam generator was replaced. UFSAR Change Request FN 95-012 with Safety Evaluation 94-SE-MOD-084 removed similar Unit 1 specific statements as part of incorporating the changes from the Unit 2 steam generator replacement but inadvertently missed this one. WNEP-9401, Vol.1 (Westinghouse Stress Summary Report, Unit 2), demonstrates that the tube to tubesheet weld analysis is identical for the replacement steam generators of both units. Therefore, this statement should be revised. The proposed change is addressed by Safety Evaluation 94-SE-MOD-084. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 42

Revise Section 5.5.9.2.2 to clarify that the inservice inspection of external supports on the reactor coolant system vessels is performed in accordance with ASME Section XI and the Technical Specifications. The requirement for the inservice inspection of external supports on the reactor coolant system vessels is given as ASME Section XI in Section 6.2, Component Support Program, of the Inservice Inspection Manual. To prevent confusion, this requirement should be clearly stated in the UFSAR. Technical Specification 4.4.10.1.2 further states that "in addition to the requirements of Specification 4.0.5, at least one third of the main member to main member welds, joining A572 material, in the steam generator supports, shall be visually examined during each 40 month inspection interval." This requirement was added by Amendments 58 and 40 to Units 1 and 2 Technical Specifications respectively and approved by NRC SER. Specification 4.0.5 requires inservice inspection in accordance with ASME Section XI as currently stated in the UFSAR.

The proposed changes updates the UFSAR to acknowledge the additional requirements of the Technical Specifications. Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 43

Remove the vendor-specific descriptions of snubber materials from Section 5.5.9.3.3. The vendor-specific information was approved for removal by UFSAR Change Request FN 97-038 and Safety Evaluation 98-SE-MOD-23 as a result of design change DC 97-102. The information that was inadvertently retained when the package was implemented will be removed by this change. The proposed changes were evaluated and approved by Safety Evaluation 98-SE-MOD-23. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 44

Revise Section 7.9.1 to change Class 1 to Class 1E and delete "Quality Group A, B, and C." The Reactor Vessel Level Indication Subsystem was added to Units 1 and 2 by DCP 81-01A and 81-01B respectively. These design changes clearly describe the subsystem as safety-related, Class 1E and not Class 1 as currently described in the UFSAR. DCP 81-01A also included a hand written and initialed note that the modification was Quality Group A, B, and C that was not part of DCP 81-01B. Quality Group A, B, and C are defined in Regulatory Guide 1.26. Per UFSAR Table 17.2-0, "the Company does not use the specific A, B, C, and D level classification system set forth by this guide." Therefore, this is excessive detail and conflicts with UFSAR Table 17.2-0. It is sufficient to state that the system is safety-related, Class 1E. The proposed changes were evaluated and approved by the Safety Evaluation sections for DCPs 81-01A and 81-01B. Accordingly, this change will not be considered further in this safety evaluation.

Change Item Sub # 46

In Section 9B.4.1, change the description of the height of the slot in the fuel pool loading area separating wall to 25-ft. 10-in and incorporate editorial changes. The slot in the fuel-cask-loading area wall is 25-ft. 10-in. high (top of wall, EL 291 ft. 10 in, less bottom of slot, EL 266 ft., equals 25 ft. 10 in.) as shown in controlled drawings 11715-FV-3M, Rev. 1, Spent Fuel Pit Liner and Details, Sheet 12, and 11715-FC-27C, Rev 12, Sections and Details, Sheet 1, Fuel Building. The slot is currently described as 25-feet high. The 10-inch difference is not significant because it does not alter the ability to perform the intended function of passing fuel assemblies from the fuel pool to the cask-loading area, particularly since the correct dimension is higher. This change also adds dashes to the dimensions of the slot in keeping with editorial practices.

The proposed changes simply update the description of the slot in the fuel pool loading area separating wall in the UFSAR. Since there is no impact on the performance of the safety-related and/or non-safety-related equipment or no procedural changes are required, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the facility in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 47

Delete Figure 3.8-12 from the UFSAR, revise Section 3.8.2.1.4 to replace the reference to this figure with a reference to the appropriate controlled drawings for Units 1 and 2, and add the controlled drawings to Section 3.8, Reference Drawings. Figure 3.8-12 is titled, "physical location assignments of electrical penetrations" and Section 3.8 refers to this figure as showing the arrangement of the electrical penetrations through the containment. However, as shown in controlled drawings 11715-FE-35A and 12050-FE-35A, the penetrations are arranged differently for each unit. Therefore, this figure cannot accurately depict the penetration arrangement for both units. While this figure was provided in the FSAR, such a figure is not required by the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants, February 1972. In order to prevent confusion with the controlled drawings, this change replaces Figure 3.8-12 with references to controlled drawings 11715-FE-35A and 12050-FE-35A.

Since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve replacing a figure in the UFSAR with a reference to controlled station drawings and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-61

Description

North Anna UFSAR Change Request No. FN 99- 057

UFSAR Change Request No. FN 99-057 contains a list of changes which need to be corrected or clarified in the UFSAR sections that discuss North Anna's Nuclear Control System. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's Nuclear Control System.

Summary

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub #1

Replaces the UFSAR's literal conclusions that QDRs and vendor test reports are contained under one cover.

Vendor test reports, described in UFSAR Sections 3.11.1.3.1, 3.11.1.3.2, 3.11.1.3.3, and 3.11.2.2 as contained under one cover, are actually enclosed under a separate cover from the Qualification Documentation Review (QDR) package. Section 3.11.1.3 describes the qualification testing that has been performed on various protection system equipment. Vendor test reports, rather than being included under one cover of the QDRs, have been located under a separate cover and merely referenced by the QDRs. Vendor test reports are considered by their authors to be proprietary information and for that reason must not be included under one cover with the QDR package.

Additionally, a similar reference to vendor test reports is made in Section 3.11.2.2 and that fact also needs clarification.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #2

Removes from the UFSAR the out of date location associated with the reactor coolant system RTDs.

The designated location of the reactor coolant loop RTDs is incorrectly described in the UFSAR. Section 4.2.3.5 describes instrumentation features associated with the reactor coolant loop RTDs. In 1992, modifications DCP 89-40 and DCP 89-41 and their associated safety evaluations approved by the SNSOC 8/11/92, eliminated the instrumentation-RTD bypass lines from the reactor coolant system. However, Section 4.2.3.5 of the UFSAR did not remove all references associated with this non-existent instrumentation-bypass-line feature designation.

Additionally, Section 4.2.3.5 contains an incorrect UFSAR cross-reference. Rather than referring to Section 7.3, Section 4.2.3.5 should reference Section 7.7. UFSAR Section 7.7 addresses the subject of the reactor control system and that subject is relevant and appropriate to the instrumentation application discussions presented in Section 4.2.3.5.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation currently proposed; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #3

Replaces the mechanical overspeed setting, identified in UFSAR Section 5.5.1.3.9, with a correct setting.

In UFSAR Section 5.5.1.3.9 the mechanical setting of the turbine's overspeed protection is incorrectly identified as 100%. A mechanical setting value of 100% is obviously incorrect, since the turbine can not successfully operate at this value. Some reasonable overspeed setting is necessary at rated power to provide for voltage and frequency fluctuations under normal system variations. A review of the earlier UFSAR Section 5.5.13.9 editions indicates that this incorrect mechanical setting value was apparently misrecorded in the UFSAR at the time of the UFSAR's first major update in 1982. The correct value of the mechanical overspeed setting should be about 110% to 111% of nominal speed conditions. A nominal setting of 110% overspeed was recorded by the earliest edition of the FSAR. This nominal value provides a bases for the approximate nature of this mechanical setting. Currently, PT-34.5 requires a setting of 111% of the nominal overspeed conditions as the desired mechanical trip value. 111% is selected in accordance with the Westinghouse Vendor Tech Manual for identification in the UFSAR, because this setting represents an approximate and conservative upper limit for initiation

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation currently proposed; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #4

Replaces the descriptions about off-normal delta-T conditions monitored by the Median Signal Selector auctioneering circuitry.

Replacement information about off-normal assumptions, in relationship to the Median Signal Selector signals, should be added to Section 7.2.2.3.2 to further clarify this section. Section 7.2.2.3.2 addresses and illustrates specific control and protection system interactions associated with the Median Signal Selector feature on the delta-T and Tavg control system. Section 7.2.2.3.2 makes clear that the delta-T and Tavg control system monitoring and alarm features are provided to alert the operator about potential control system malfunctions that are automatically compensated for by the Median Signal Selector - if delta-T measurements reach off-normal conditions. The evaluation presented illustrates that a -2 degree Fahrenheit deviation, among the RTDs that generate the delta-T temperature difference calculations, would signal the Median Signal Selector auctioneering circuitry to alert the operator and also to transmit the highest remaining delta-T signal, if these off-normal conditions were to exist. UFSAR Section 7.2.2.3.2 does not clarify that a -2 degree Fahrenheit off-normal condition is actually displayed by the control room annunciators as an equivalent value of the deviating delta-T conditions. Annunciator displays are provided and alarm conditions will alert the operator when a - 3.2% delta-T power condition is reached. A -3.2% delta-T power signal magnitude is based on the assumed delta-T conditions of 63.4 degrees Fahrenheit at 100% rated thermal power as determined by engineering calculation EE-0491. The UFSAR Section 7.2.2.3.2 revision should make clear that a -3.2% delta-T power condition is an off-normal condition that is based on a nominal 63.4 degrees Fahrenheit temperature difference among redundant delta-T calculations at 100% power.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to

safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #5

Adds, replaces and removes descriptive illustrations and analytical conclusions about safety related display instrumentation presented in UFSAR Section 7.5.

(A) Refreshes the general descriptions and analysis about safety related display instrumentation presented in Section 7.5 and its associated summary tables, 7.5-1, 7.5-2, and 7.5-3, based on the Standard Format and Contents guidance for the FSAR and on the NRC Regulatory Guide 1.97 responses and on the Technical Report NE-1200, Rev1.

(B) Adds descriptions and analytical conclusions that signify particular display instrumentation that complies with Regulatory Guide 1.97 requirements, as outlined by Virginia Power Technical Report PE-0013, "North Anna Power Station Response to Regulatory Guide 1.97" and Technical Report EE 0069, "Regulatory Guide 1.97 Type "A" variable North Anna Power Station Units 1 and 2."

(C) Replaces analog indication accuracy values associated with display instrumentation, based on Virginia Power's Engineering Standard, STD-EEN-0304, "Calculating Instrumentation Uncertainties by the Square Root of the Sum of the Square Method."

(A) UFSAR Section 7.5 is out of date and, in general, in need of a complete refreshment. UFSAR Section 7.5 contains the original identification of safety related instrumentation displays required by the Standard Format and Content Guide issued in 1972 by the then governing body of AEC. Section 7.5 in addition to the standard contents also contains various revisions to the original FSAR assessment, based on later assessment criteria established by Regulatory Guide 1.97 in the aftermath of Three Mile Island. Overall, Section 7.5 addresses relevant and appropriate display instrumentation needed by the operators under various accident conditions considered appropriate by Chapter 15 of the UFSAR as evaluated by Technical Report NE 1200, Rev 0, August 1999. In particular, Section 7.5 identifies both the display instrumentation that enables the operator to perform required safety functions, as well as the display instrumentation that requires post accident and safe shutdown surveillance. Section 7.5 needs to be refreshed to illustrate the latest accident analysis and Regulatory Guide 1.97 considerations - to present a high level UFSAR summary of the display options available to the operator - that are satisfactory to the original design intent as well as the latest analytical criteria. This Section 7.5 analysis, is to be understood to present the identification of available display instrumentation, as well as a relevant and appropriate amount of operational information required, while the full extent of displays already provided to the operator - meets his needs to correlate essential information - for the purpose of positive and affirmative outcomes to postulated events.

Additionally, Section 7.5.2 does not make clear which reactor coolant temperature variables are recorded on seismic recorders. Section 7.5.2 needed to make clear that the recorded reactor coolant temperature variables are the wide range variables and not to be confused with the narrow range variables.

Additionally, Section 7.5.2 incorrectly identifies auxiliary feedwater pressure as a variable displayed to the operator by a seismically qualified indicator. This variable should be correctly designated as the auxiliary feedwater flow so as to agree with Table 7.5-3.

Additionally, Section 7.5.2 should identify IEEE 323-1971 as an appropriate standard for the design of the North Anna post accident monitoring panels. A UFSAR typographical error incorrectly identifies this industry standard as IEEE 323-1979.

(B) Additional variables are considered as part of the Conditions IV assessment of post accident instrumentation. Section 7.5, Table 7.5-2, summarizes the analysis of those instrumentation displays available to the operator during severe accident conditions associated with worst case events described by the UFSAR, Chapter 15. Regulatory Guide 1.97 describes the typology acceptable to the NRC for complying with their regulations about this subject. The use of this typology must result in conclusions that particular instrumentation applications or types will be available for monitoring variables and systems during and following worst case Condition IV accidents. As a result of the Regulatory Guide 1.97 typology, according to prescribed assumptions, Virginia

Power reassessed earlier conclusions about the sufficiency of particular variables and their capability to comply with NRC requirements. Virginia Power Technical Report PE-0013 summarizes a long history of North Anna Power Station's responses to Regulatory Guide 1.97 matters. From the results of activities taken by Virginia Power, in order to conform with the overall criteria of Regulatory Guide 1.97, additional variables must be added to the list of post accident instrumentation displays that were not previously considered appropriate to the assessment, as illustrated on Table 7.5-2.

(C) Indication accuracies identified in Tables 7.5-1, 7.5-2 and 7.5-3 are out of date. The original indication accuracy determination methodology used by Westinghouse has been modified to be consistent with the current industry methodology documented in ANSI/ISA-S67.04-1982, "Setpoints for Nuclear Safety Related Instrumentation." This standard was developed to specifically address the establishment and maintenance of setpoints for individual safety-related instrument channels. This standard was endorsed by the NRC in Regulatory Guide 1.105, "Instrument Setpoint for Safety-Related Systems," dated 1986. Specifically, "ISA-S67.04-1982 establishes requirements acceptable to the NRC Staff for ensuring that instrument setpoints in safety related systems are initially within, and remain within, the technical specification limit." It is this same methodology that is used for determining the uncertainty associated with protection channel indication. Channel instrumentation uncertainty (error) is determined through the use of the Channel Statistical Allowance (CSA) methodology. Calculated values are found in EE 0101 or in supporting calculation records. The "square root of the sum of the squares" method is used to determine the CSA value for channel indication. This is based on the definition documented in Virginia Power Standard STD-EEN-0304. The NRC has previously agreed with these conclusions based, on their review of STD-EEN-0304, as documented in Inspections Report No. 50-338/89-10 and No. 50-339/89-10, North Anna 1 and 2, dated April 1989.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #6

Replaces the description of "emergency" terminology associated with the actuation of the Low Low rod insertion monitoring alarm.

The UFSAR terminology associated with the conclusions reached by Section 7.7.1.3.3 and 7.7.2.2 is misleading in one significant way. The UFSAR states that "emergency boration procedures" are required whenever the Low Low rod insertion limits (alarm) are reached or exceeded by process conditions. The UFSAR's terminology is correct in one way that immediate operator actions are required, but are misleading in another way - in describing the specific type of actual station procedures that implement the required immediate boration steps. Station procedures that implement immediate boration steps are not "emergency procedures." The actual station procedures do, however, implement immediate boration steps, which is of significance. The alarm annunciator procedures, in effect, implement immediate and relevant boration steps. Additionally, and of importance, the alarm response procedures implement the required responses associated with Technical Specification 3.1.3.6. Section 7.7.1.3.3, and the conclusions reached in Section 7.7.2.2 are reworded to describe the actual steps taken to respond to the Low Low insertion limit alarm and Technical Specifications requirements.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to

safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #7

Adds an exact description of the C3 and C4 rod-stop interlock.

UFSAR terminology associated with the "rod stop" description in Section 7.7.1.4.2 is inexact and possibly misleading. Section 7.7.1.4.2 describes the automatic turbine load runback and rod stop features associated with an overpower or overtemperature process condition. These automatic features are designated as the C3 and C4 protective interlocks and have two concurrent functions: one function is to initiate a turbine runback condition and a second function is to initiate a rod withdrawal block or rod-stop condition. The Section 7.7.1.4.2 discussion of these features does not clearly distinguish a consistent terminology associated with each concurrent function. Section 7.7.1.4.2 needs to make clear that the C3 and C4 interlocks do involve a "rod stop" function and a turbine "runback" function that is initiated at the same setpoint. Section 7.7.1.4.2 needs to clarify the C3 and C4 interlock terminology as being about "runback" conditions and "rod stop" conditions concurrently as appropriately illustrated by Functional Block Diagram 5655D33, Sheet 9

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #8

Replaces Tavg terminology annotated on the simplified plant control system block diagrams.

Several UFSAR simplified block diagrams incorrectly and inconsistently incorporate Tavg signal annotations. Incorrect and inconsistent annotations resulting from facility modifications DC 89-40-1 and its corresponding safety evaluation approved by SNSOC 12-10-91 have been noted. Figures 7.7-1, 7.7-3, 7.7-5, 7.7-10, and 7.7-12 illustrate simplified block diagrams of various features of the plant control systems described in Section 7.7 of the UFSAR. Modifications to these controls, associated with the elimination of the RTD bypass lines, also redesigned the control system's analog Tavg signal circuitry; however, appropriate UFSAR revisions did not change relevant and appropriate annotations associated with the four simplified block diagrams. Revised annotations must identify the modified analog circuitry that is identified by "Median/Hi Tavg," rather than "T auctioneered."

Additionally, other minor annotations associated with these sketches, such as annotations and signal flow paths that are incorrectly illustrated are made clear. Also, Section 7.7.1.8.2 has retained old "auctioneered" terminology and this terminology needs to be up dated.

Additionally, Section 7.7.1.3.3 concludes that the highest auctioneered Tavg and delta T values are chosen for use by the insertion limits computations. In the measurements system's normal mode, the "median" signals are selected, while in the measurement system's failure mode the "highest" signal is selected for processing by the calculated insertion limits.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #9

Replaces a portion of the generic description of the rod control system's analysis associated with mechanisms of groups and numbers.

The generic UFSAR description of the number of mechanisms in each rod control bank could be more specific. Section 7.7.2.2 describes the reactivity control considerations associated with the control rods and their drive mechanisms. In particular, the Section 7.7.2.2 provides a generic discussion about the mechanisms in each control group of its respective bank. North Anna's rod control system has four connected mechanisms per group rather than having an optional fifth mechanism provided by the generic Westinghouse rod control system. Section 7.7.2.2 should be corrected to report that each control bank is divided into two groups of four mechanisms each.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #10

Adds descriptions about the nuclear instrumentation flux tilt monitoring feature.

UFSAR Section 7.7.2.2 remarks about the flux tilt monitoring feature could be clearer. Section 7.7.2.2 supports the analysis of the reactor control system's capability to cope with unusual control rod problems that may undermine safe operation if not recognized by the operator and corrected through the use of this feature. Section 7.7.2.2 reaches conclusions in its discussions related to the sufficiency of the control system's design features to meet various General Design Criteria. Section 7.7.2.2 describes the capability of the flux tilt monitoring feature; however, Section 7.7.2.2 does not make a clear connection between the flux tilt monitoring feature and the nuclear instrumentation system of which the flux tilt monitoring feature is one part. To make clear what this connection is about, clarification is needed to identify the nuclear instrumentation system as the system and the flux tilt monitoring feature as a part of that system.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #11

Adds clarifications about the descriptions of the steam dump and feedwater control systems.

Conclusions stated in UFSAR Section 7.7.2.6 about the steam dump and feedwater control systems, which are separate systems under one control, are unclear. Sections 7.7.2.6 describe conclusions about the plant control system when a turbine trip results in a reactor trip. UFSAR conclusions about the steam dump system and the feedwater control system need to make clear that these two separate, but coordinated, systems are designed to prevent the average coolant temperature from falling below the programmed values. Clarification makes the point that separate parts of the overall control system (the feedwater control system and the steam dump control system) are important to maintaining stable reactivity conditions.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #12

Replaces the UFSAR's sketch of the circulation water pump breaker's C-9 interlock annotations and logic symbols.

Drawing logic symbols on Figure 7.7-5 are out of date. Figure 7.7-5 illustrates the steam dump system's functional block diagram. Illustrated on this figure is the C-9 interlocking logic between the four main circulating water pumps and the blocking function associated with the main condenser's availability status. The steam dump system can be automatically blocked by an unavailable condition of the main steam turbine's condensers when less than two of the four circulating water pumps are in operation. A minimum flow through the condenser is needed for the proper removal of the steam turbine exhaust and as a signal to the steam dump system that an adequate heat removal source is available. Modifications associated with DC 85-37-1, as approved by SNSOC on 12-19-85 with its associated engineering review and safety analysis, implemented the revised C-9 interlock to improve condenser performance and optimize condenser flow conditions. An earlier UFSAR rewrite, associated with the approved modifications, did not update Figure 7.7-5 to illustrate the correct drawing annotations and logic symbols.

In addition, Table 7.7-1 needs to be brought up to date to properly describe the C-9 interlock. Whenever three of the four circulating water pumps are unavailable, the C-9 permission to dump steam to the condenser is blocked by an unavailable condenser status.

Also, Figure 7.7-5 has a Note 5 drawing annotation that should be removed. Originally, Note 5 was associated with generic Westinghouse conclusions about several of their plants' C-9 interlocks. Note 5 is no longer relevant to the North Anna design bases and can be removed from Figure 7.7-5.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Change Item Sub #13

Removes drawing signal links from the pressurizer pressure control system simplified block diagram.

Signal links on the simplified block diagrams of the pressurizer pressure control system are incorrect. Figure 7.7-9 illustrates the simplified analog signals that make up the pressurizer pressure control system. Figure 7.7-9 incorrectly illustrates the two separate analogs that make up the signals to Power Relief Valve #1 and Power Relief Valve #2. Figure 7.7-9 should illustrate pressurizer pressure analog signals as originating from two separate signal paths. Control Drawing NA-DW-5655D33, Sheet 11 of 16, correctly illustrates the signal paths.

In addition, incomplete spray valve drawing annotations must be made clear.

Since there is no impact on the performance of the safety-related and/or non-safety-related equipment in the nuclear control system that is not bounded by accident analysis assumptions, the proposed changes do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety. There are no physical changes to the plant or to its methods of operation; therefore, there is no possibility for a new or different kind of accident or malfunction of equipment important to

safety to be created. There are no changes to the condition or performance of equipment or systems used in accident mitigation or assumed for any accident analysis that could reduce a margin of safety as described in the basis for any technical specification.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. These non-editorial changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed non-editorial changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59, and based on the evaluation summarized above, the proposed non-editorial UFSAR changes have been determined not to represent an unreviewed safety question.

99-SE-OT-62

Description

North Anna UFSAR Change Request No. FN 99-053.
UFSAR Change Request No. FN 99-053 contains a list of changes, some of which are editorial in nature, which need to be corrected or clarified in the UFSAR sections that discuss North Anna's component cooling water system. This package is a result of the Integrated Configuration Management Project review of North Anna Power Station's component cooling water system.

Summary

The following editorial/administrative changes are proposed. (Proposed changes are identified by change item subnumber.) These changes are intended to correct administrative errors or enhance clarity and do not alter the technical basis of the UFSAR description. These changes do not affect any component cooling water system components or any other SSC's operation or performance. These changes do not result in an unreviewed safety question.

Change Item Sub # 4
Correct the reference to the detector in Section 9.2.2.2.1 from Section 11.4.2.5 to Section 11.4.2.7.
Move the sentence that discusses how chemical addition is accomplished in Section 9.2.2.3.1 to the following paragraph which discusses chemical addition.
The word "signal" will be added to "high-high containment pressure" in Section 9.2.2.5.1. Section 9.2.2.2.1 currently states "The presence of radioactivity in the component cooling water subsystem is detected by a radiation monitor. ...Operation of the detector is described in Section 11.4.2.5." Section 11.4.2.5 describes the ventilation vent B particulate monitor and ventilation vent B gas monitor. Section 11.4.2.7 describes the radiation monitor that continuously monitors the component cooling water system.
Section 9.2.2.3.1 is being changed for consistency within the UFSAR.
Section 9.2.2.5.1 of the UFSAR will be clarified to state that it is an actual signal that causes the air operated trip valves to close on high containment pressure.

Change Item Sub # 10
Residual heat removal heat exchangers, primary drain transfer tank cooler and recirculation air cooling coils will be added to the list of components inside containment in Section 9.2.2.5.1. The line of text that discussed the residual heat removal heat exchangers and the recirculation air cooling coils was dropped during the conversion from the FSAR to Revision 0 of the UFSAR. The primary drain transfer tank cooler is being added to be consistent with the description of equipment that is cooled by component cooling water in UFSAR Section 9.2.2.3.1. The location of the added equipment is shown on UFSAR reference drawing 11715-FM-079B for the component cooling water system.

Summary:
The above editorial/administrative changes are within the current design and licensing basis of the facility. These changes do not affect the initiators of analyzed events nor the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems, or components. These changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event, and the successful functioning of at least one train or division of the equipment credited with mitigating the event. These changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed editorial/administrative changes to the UFSAR do not involve any increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed editorial changes involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed

editorial/administrative changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.
Margin of safety is established through the design of the plant structures, systems and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. The above UFSAR changes do not impact the condition or performance of structures, systems or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed editorial/administrative changes to the UFSAR do not involve a reduction in any margin of safety described in the bases for the Technical Specifications.

With regard to the criteria set forth in 10 CFR 50.59 and based on the evaluation summarized above, the proposed editorial/administrative UFSAR changes have been determined not to represent an unreviewed safety question.

The following non-editorial changes are proposed. (Proposed changes are identified by change item subnumber.) The major issues considered; the reason the change should be allowed; and why an unreviewed safety question does not exist is presented for each of these changes.

Change Item Sub # 1

Delete the incorrect statement in Section 3.1.42.2 that states refueling is conducted on a yearly basis. As stated in Amendment No. 49 to the North Anna Facility Operating License, a normal refueling cycle is 18 months. The integrity and operability of the flow path of component cooling water to the residual heat exchangers are verified by utilization during normal shutdown and therefore does not need any special testing to demonstrate continued adequacy of this standby system. This change does not effect the design or licensing basis of the component cooling water system. Since removing the incorrect statement that refueling is conducted on a yearly basis does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involve changing the description of the refueling cycle in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 2
The actual type of valve in Table 3.9-1 will be changed to globe for TV-CC-106A, B, C; to globe for TV-CC-101A, B; to butterfly for TV-CC-100A, B, C. The Line on TV-CC-115A, B, C will be changed to read "to/from". The name of the chilled water system will be corrected.
Replace VCI-15C with the following check valve numbers:
1-CC-193, 198 Cooling water supply to residual heat removal heat exchanger.
1-CC-84, 119,154 Cooling water supply to reactor coolant pump.
1-CC-546, 559,572 Cooling water to recirculation air coolers.
1-SW-120, 130,140,150 Service water to the recirculation spray coolers
Replace VCW-15Y with the following check valve numbers:
1 RS-18, 27 Recirculation spray containment isolation check valves
1 QS-11, 19 Quench spray containment isolation check valves
Replace VGW-15A with the following gate valve numbers:
1 FW - 162, 180 (4"); 1 FW-145, 160, 173, 229, 230 (6"); 1 FW-143 (8") Auxiliary feed supply
Replace VGW-15X with 1 FW-142 Condensate storage tank cross-connect
Replace VGW-60A with the following gate valve numbers:
1 FW-166, 172,184,190 (4"); 1 FW-149, 155 (6") Auxiliary feed pump discharge
Replace VCW-60X with the following check valve numbers: 1FW-47, 79, 111 Feedwater isolation
A note will be added to the before mentioned valve number changes that states that the Unit 2 valves are similar with different mark numbers. Dashes will be added to main steam system numbers where needed.
As shown on 11715-FM-079B/D, original FSAR Figures 9.2.2-2/4, and in EDS, the valves will be changed to reflect actual as built components. There is no requirement for these valves to be a specific type. As shown on 11715-FM-079D, the B and C trip valves for the chilled water system are on the supply and

return line from the recirculation air coolers. The UFSAR will be clarified to reflect the proper check valve numbers for cooling water to the residual heat removal heat exchanger, reactor coolant pump, and recirculation air coolers as shown on 11715-FM-079B and 12050-FM-079A. The UFSAR will be clarified to reflect the proper check valve numbers for service water to the recirculation spray coolers as shown on 11715-FM-078B. The UFSAR will be clarified to reflect the proper check valve numbers for recirculation spray and quench spray containment isolation check valves as shown on 11715-FM-091A. The UFSAR will be clarified to reflect the proper check valve numbers for auxiliary feed supply and pump discharge, condensate tank cross connect, and feedwater isolation valves as shown on 11715-FM-074A.
The proposed changes correct the UFSAR to match original plant construction and FSAR figures and they do not require procedural changes. They do not effect the ability of the component cooling water system, chilled water system, main steam, service water or the recirculation air coolers to perform their design functions. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in part of the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 3
New Figure 9.2-3 will be added to show the neutron shield tank cooling water system. This figure will be referenced in Section 9.2.2.1.3 of the text.
Figure 9.2-2 will have the following changes:
1) The label CCW will be changed to Component Cooling
2) The valve from the condensate system to the component cooling surge tank will indicate closed.
3) The valve from the component cooling surge tank to the component cooling pump suction header will indicate open.
4) The valve between the Unit 1 and Unit 2 component cooling heat exchangers will indicate closed.
5) Omit listing the loads and the legend. For completeness, Figure 9.2-3 will be added to the UFSAR. This simplified figure depicts the neutron shield tank cooling water system. It is similar to plant drawing 11715-FM-079B.
The components and valve positions on Figure 9.2-2 were checked using the mechanical plant drawings series 11715-FM-079 and operating procedure OP-51.1A. The load lists that are being removed from figure 9.2-2 are discussed in the text. Since the proposed change does not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves adding a figure of the neutron shield tank cooling water system to the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 5
Remove the statement in section 9.2.2.2.4 that indicates that there are double asterisks at the end of the equipment number on the reference drawings.
Delete the discussion in Section 9.2.2.2.4 of the neutron shield coolers being non-seismic and the resulting paragraph discussing the seismic failure of the coolers.
Section 9.2.2.2.4 will be changed to discuss Reference Drawing 20, not 19. There is no double asterisk at the end of the equipment number on these drawings. This statement was put in the UFSAR as a result of NRC FSAR question and answers S9.25-1. Comment 9.25 states "Clearly indicate on the system flow diagrams the sections of the component cooling water system that are not seismic Category I...." In response, VEPCO replied "Non-seismic equipment is indicated on Fig. Nos. 9.2.2-1 - 9.2.2-6 by ** at the end of the equipment number...." The figures that were supplied to the NRC with the response to question S9.25-1 contained double asterisks. However, the double asterisks were not retained in subsequent revisions/submittals. The current system drawings do not have the double asterisks to indicate the seismic

boundaries of the component cooling water system. By the subsequent statement in the UFSAR, it is obvious where the seismic boundaries are from the Q2 or Q3 designations.

The coolers have been determined to be seismically adequate to ensure retention of pressure boundary. Additionally, the component cooling trip valves are fail-open, air-to-close, energize-to-close valves with SOVs powered from non-vital sources and therefore can not be relied upon to have motive power to close following a seismic event. Seismic adequacy of coolers is documented in Summary Report for Resolution of USI A-46, transmitted to the NRC via letter 97-246. UFSAR Section 3.10.3 discusses the acceptability of this alternate verification method.

Correcting section 9.2.2.2.4's reference to Drawing 20 shows the equipment shown on 11715-FM-79C, which was original Figure 9.2.2-3 as properly referenced in the FSAR. The proposed changes do not involve physical changes to the facility, change the seismic boundaries of the component cooling water system or down grade the seismic qualification of the neutron shield coolers. These changes do not require procedural changes. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of what is currently contained in controlled drawings and correct the description of the seismic adequacy of the neutron shield coolers in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 6

Section 9.2.2.3.1 will:

Discuss various primary sample coolers

Clarify that the mode is the second phase of unit cooldown

Delete the spent fuel cask from the list of components that are cooled by the component cooling water system during operation

Correct name to primary drain transfer tank cooler. The following bases are given for the recommended changes:

The loads listed did not include all of the primary loads, they only include the reactor unit sample coolers. As shown in drawing 11715-FM-079C, these loads include the reactor coolant, pressurizer liquid, gas stripper liquid effluent, and residual heat removal coolers.

As discussed in UFSAR Section 5.1.3.3, 5.2.1.2, 5.5.4.1 and 5.5.4.2.2.3, the residual heat removal coolers are used for removal of decay heat during the second phase of unit cooldown.

Even though the capability to connect component cooling to a loaded spent fuel cask has not been removed from the component cooling water system (as shown on drawing 11715-FM-79C) and the hose connections are discussed in Section 9.5.9.2, the spent fuel casks do not require cooling. Therefore, the spent fuel casks will be removed from the heat load list in Section 9.2.2.3.1. The load from the spent fuel cask was not listed in this section in the original FSAR.

The name of the primary drain transfer tank cooler is being revised to be consistent throughout the UFSAR. The proposed changes correct the description of the components that are cooled by the component cooling water system. Adding a description of component cooling loads from the sample coolers and removing the component cooling load due to the spent fuel casks from the UFSAR does not effect the component cooling water's ability to handle heat loads for the various plant conditions. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The changes only involve correcting components in the description of the component cooling water system loads in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated. Therefore, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 7

This item was deleted

Change Item Sub # 8

Section 9.2.2.3.3 will be clarified to state there is a chemical addition connection instead of a chemical addition funnel. Drawing 11715-FM-079B and FSAR figure 9.2.2-2 shows a chemical addition connection on the neutron shield surge tank. The proposed change corrects the UFSAR to match original plant construction as shown in the original FSAR figure; it does not involve physical changes to the facility or require procedural changes. The change does not effect the ability of the neutron shield tank cooling water system to perform its design functions. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the change only involves changing the description of the chemical addition connection in the UFSAR to match original plant construction and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 9

Delete paragraph in Section 9.2.2.5.1 that discusses manual switchover of component cooling water headers. This paragraph was originally added by DCP 84-12 via UFSAR Change Request FN 83-26 to describe adding component cooling for penetration cooling and relegating service water to a backup source. UFSAR Change Request FN 90-72 modified the paragraph to its current form following implementation of DCP 89-24. DCP 89-24 removed service water as a backup source of cooling and added a second component cooling line to the redundant 18" residual heat removal component cooling supply and return headers. The original intent of DCP 89-24 was to have one component cooling source normally isolated; 1/2-OP-51.1A were modified at the time to reflect this arrangement. In 1991, PARs were submitted to 1/2-OP-51.1A, and subsequently approved, to change the normal position of all four component cooling valves for each unit to normally open (no reason given). The Activity Screening Checklist for the PARs incorrectly noted that the lineup was not described in the UFSAR, and therefore a Safety Evaluation was not performed. In 1992, DR N-92-1208 was submitted to document the discrepancy between the valve lineup procedures, 1/2-OP-51.1A, and 11715-FM-079B, and 12050-FM-079A, with the corrective action being submittal of Drawing Update Requests to change the normal position of the valves to open on the affected drawings. Subsequently, FN 92-106 was submitted, unsigned and without a Safety Evaluation. In 1997, DR N-97-0336 was submitted to document the discrepancy between the lineup as described in the UFSAR and the lineup specified in 1/2-OP-51.1A and as depicted on the FM drawings. The corrective action was to submit UFSAR change request FN 97-016, with Safety Evaluation 97-SE-OT-16, which was SNSOC approved in March 1997. Both FN 92-106 and FN 97-016 have never been implemented. They are superseded by this UFSAR Change Package, FN 99-053. The statement is not original FSAR discussion and is not required to understand component cooling water availability or reliability. Component cooling water is supplied from both headers and per operating procedure 1/2-OP-51.1, is aligned with all valves open to the penetration coolers. Therefore, there is no longer a penetration cooling issue. Since deletion of the paragraph does not involve physical changes to the facility or require procedural changes that have not been previously reviewed by a safety evaluation, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve deleting incorrect information from the UFSAR and do not involve changes to the facility or the manner in which the facility is operated that have not been previously reviewed, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 11

Table 9.2-5 will be revised as follows: the duty from 49.5 x10^6 to 52x10^6 Btu/hr., the shell inlet temp from 140° to 116.5°, the shell outlet temp from 114.5° to 105°, and the tube outlet temperature from 112.6° to 104.9°. The component cooling heat exchangers were derated in 1994 due to excessive tube plugging and UFSAR Change Request FN 94-020 and Safety Evaluation 94-SE-OT-034 was initiated to revise the heat duty, the shell side inlet & outlet temperatures, and the tube side outlet temperature. Subsequently, the unit 1 component cooling heat exchangers have been completely retubed (DCP 97-002 and Safety Evaluation 97-SE-MOD-19) and the unit 2 component cooling heat exchangers replaced in their entirety (DCP 97-003, UFSAR Change Request 97-050 and Safety Evaluation 97-SE-MOD-34). The original component cooling heat exchangers specification NAS-96 was revised by addendum 1 to reflect that it only applied to unit 1 and the physical changes implemented by the DCP. A new specification was issued, NAP-0090, for procurement of the new component cooling heat exchangers for unit 2. Both specifications reflect performance data that is consistent with UFSAR Table 9.2-5 prior to the implementation of FN 94-020. The current performance data is also consistent with that of the originally procured component cooling heat exchangers. UFSAR Change Request FN 97-050 changed the design code and materials for the heat exchangers, but did not change the operating temperature or duty. Therefore, the component cooling heat exchanger performance data in the UFSAR should be returned to the original nominal design values that represent the existing heat exchangers. The changes to the component cooling heat exchangers have been previously reviewed by approved safety evaluations. Correcting the component cooling heat exchanger performance data in the UFSAR to the Specification's nominal design values does not involve physical changes to the facility or require procedural changes. Therefore, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the component cooling heat exchanger performance data description in the UFSAR and does not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 12
Delete the interconnection for waste disposal. This item should be deleted from the table since this interconnection is no longer used per EWR 90-171D. The EWR addressed changing UFSAR sections 11.2 with incorporated UFSAR Change Request FN 91-25 and Safety Evaluation 91-SE-MOD-028. The interconnection originally consisted of control signals from the waste disposal system to operate component cooling water system control valves for coolers and condensers associated with waste disposal operations. The interconnections are indicated on drawings 11715-FM-079C. However, as shown on these drawings, the waste disposal condensers and coolers have been "abandoned in place." Since abandoning the waste disposal condensers and coolers has been previously evaluated by Safety Evaluation 91-SE-MOD-028, this change will not be evaluated any further in this safety evaluation.

Change Item Sub # 13
The information for the component cooling water pumps in Table 9.2-9 will have the following changes:
1) Revise the "Comments and Consequences" discussion for "Standby pump fails to start" to state it may require manually repositioning of valves at the pumps.
2) The "Malfunction" column description for the fourth item identifies the component cooling pump suction valves as "manual gate" valves. The UFSAR will be changed to delete the reference to "gate."
1) Existing statement indicates that the standby pump may be started "after repositioning valves at the pumps." Statement will be modified to indicate that valves may require repositioning since the normal alignment for both units' component cooling system is a cross-connected configuration with the pump suction and discharge cross-connect piping open between the units (reference 1/2-OP-51.1, Component Cooling System). Local valve manipulation would only be required if both component cooling systems were "split-out" or some other off-normal configuration existed.
2) Drawings 11715-FM-079A, and 11715-FP-18C indicate that 1-CC-P-1B & 2-CC-P-1A have manual butterfly suction valves whereas 1-CC-P-1A & 2-CC-P-1B have manual gate suction valves. Since there are two types of manual valves installed and the type of valve is not relevant to the malfunction discussion in the UFSAR table, the description should be revised to delete the reference to "gate." This combination of gate & butterfly valves existed in the original FSAR figure for the component cooling pumps and valves (dated 1-3-73). Based on the discussion above and since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated,

there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 14
The information for the condensate makeup line valve text for "Comments and Consequences" in Table 9.2-9 will be changed to state the level control valve is normally isolated and there are no consequences to the level control valve sticking open. Based on the implementation of EWR 89-343, UFSAR Change Request FN 90-81 and safety evaluation 90-SE-MOD-138, there is no consequence to the level control valve sticking open. Specifically, the EWR justified the elimination of the automatic makeup feature of the component cooling surge tank level control valve by formally establishing the normal position of 1-CC-623, which is the manual inlet isolation valve to the level control valve, as closed. The appropriate operating procedure reflects this change by providing direction for local manual makeup to the surge tank when required. Therefore, the "Comments and Consequences" response will be changed to reflect the current configuration and method of makeup. Based on the discussion above and since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 15
The information for the component cooling water heat exchanger drain valve in Table 9.2-9 will have the following changes:
1) Under the heading "Components", revise the description to include the component cooling water heat exchanger vent valves.
2) Under the heading "Comments and Consequences" replace the existing "Note" to state that branching-off the vent line is a flow path that returns to the component cooling surge tank and is normally left open for radiation monitoring. 1) As shown of 11715-FM-079A, there are vent lines with normally closed isolation valves on each component cooling water heat exchanger that may be used to return a component cooling water heat exchanger to service as indicated in MOPs 1/2-CC-MOP-50.30/50.31. Therefore it is appropriate to also consider the vent valves for a malfunction evaluation. 2) The original note suggests that there is only a single vent path from each component cooling water heat exchanger and is maintained open. However, drawings 11715-FM-079A, indicate that there are local vent valves at each component cooling water heat exchanger and a branch connection from each vent line that ties into a common header connecting to the component cooling surge tank. A radiation monitor is also shown on the common header. Therefore, the note should be replaced with a statement indicating the existence of the vent line branch connection off each individual component cooling water heat exchanger vent piping. Based on the discussion above and since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Change Item Sub # 16
The information for the component cooling surge tank single-supply standpipe text for "Comments and Consequences" in Table 9.2-9 will be changed to state that the single-standpipe section is nearby the isolation valves, and include a 1½-in. surge line. The first change to the UFSAR sentence involves a clarification of the branch connections' isolation valves location. The current wording implies that the

isolation valves for the branch connections to the single-standpipe section are located immediately at the pipe. However, short pipe sections, less than 2 ft., are welded between the isolation valves and the standpipe as indicated on piping drawing 11715-FP-18E. The second change to the sentence involves the identification of another branch connection to the 6" standpipe (1½" diameter, connection to the Liquid Waste System). This additional branch connection, shown on VOND 11715-FM-079A, was apparently overlooked when the sentence was originally drafted. Therefore, the UFSAR sentence is being revised to more accurately reflect the installed configuration. These changes are minor and do not affect the overall justification that the failure of the standpipe is "not considered credible." Based on the discussion above and since the proposed changes do not involve physical changes to the facility or require procedural changes, there is no increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. Because the changes only involve changing the description of the system in the UFSAR and do not involve physical changes to the facility or the manner in which the facility is operated, there is no possibility of creating an accident or malfunction of a different type than previously evaluated in the safety analysis report. Since no analyses or setpoints are affected, the margin of safety as defined in the basis for any technical specification is not reduced.

Summary:

These non-editorial changes are within the current design and licensing basis. They do not, in any way, affect the as-built conditions of the plant and do not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. Analyzed events are initiated by the failure of plant structures, systems or components. The proposed changes do not impact the condition or performance of these structures, systems or components. Consequences of analyzed events are the result of the plant being operated within assumed parameters at the onset of any event. The proposed changes do not impact the capability of the credited equipment to perform, nor is there any change in the likelihood that credited equipment will fail to perform. As a result, the proposed non-editorial changes to the UFSAR do not involve an increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

None of the proposed non-editorial changes involve a physical alteration of the plant, or a change in the methods used to operate the plant or to respond to plant transients. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. Consequently, no new failure modes are introduced and the proposed non-editorial changes to the UFSAR do not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

99-SE-OT-63

Description
UFSAR Change Request # FN 99-070 for UFSAR Section 15.3.1 (Small Break Loss of Coolant Accident) and UFSAR Section 15.4.1 (Large Break Loss of Coolant Accident);
Revise UFSAR Sections 15.3.1 and 15.4.1 to incorporate a summary of the PCT penalties and benefits for the small break and large break LOCA which are reported per 10CFR50.46 requirements.

Summary
Change Being Evaluated

Revise UFSAR Sections 15.3.1 and 15.4.1 to incorporate a summary of the PCT penalties and benefits for the small break and large break LOCA which are reported per 10CFR50.46 requirements.

Background

The current North Anna analysis of record (AOR) for the large break loss of coolant accident (LBLOCA) utilized the Westinghouse 1981 LBLOCA Evaluation Model with BASH. The Westinghouse 1981 LBLOCA Evaluation Model with BASH uses the LOCBART computer code to calculate the thermal and hydraulic response of the hot fuel assembly and hot fuel rod to a postulated large break loss of coolant accident. Consistent with the requirements of 10CFR50 Appendix K, the Baker-Just model is used to calculate the cladding metal-water reaction rate.

Westinghouse identified a Potential Issue PI-98-029 concerning an error in the calculation of the cladding metal-water reaction in the LOCBART code [References 1,2]. Westinghouse filed two interim reports with the NRC in References 3 and 4. Westinghouse closed PI-98-029 with the NRC in Reference 5.

Nature of Deviation

The 1981 Evaluation Model with BASH uses the LOCBART computer code to calculate the thermal and hydraulic response of the hot assembly and hot rod to a postulated large break loss of coolant accident. Consistent with the requirements of 10CFR50 Appendix K requirements, the Baker-Just model is used to calculate the cladding metal-water reaction rate. Westinghouse identified a logic error in LOCBART which caused the Baker-Just metal-water reaction calculations to be performed three times per timestep. Correcting the error reduces the total cladding oxidation while increasing the heat deposition in the cladding. This could potentially result in violation of the 10CFR50.46 acceptance criterion for peak cladding temperature.

Evaluation

LOCBART calculations, with a corrected code version, have been performed by Westinghouse for a number of typical large break LOCA transients and algorithms have been developed for the assessment of PCT penalties. Based on these results and plant-specific information currently available to Westinghouse, it has been determined that this situation does not represent a substantial safety hazard pursuant to the requirements delineated in 10CFR Part 21. In addition, all affected plants which have been analyzed by Westinghouse are believed to be operating in a manner that would result in calculated ECCS performance which would satisfy 10 CFR 50.46 acceptance criteria. In a limited number of cases, Westinghouse anticipated that the resulting PCT would exceed the 10 CRF 50.46 limit and offsetting PCT benefits were accrued via a combination of evaluations and plant specific reanalysis. Justified cycle specific Core Operating Limit Report (COLR) peaking factor credit would be taken in some instances and Westinghouse continues to discuss this issue with utility customers.

The effect of this error on existing results was determined on a plant specific basis for North Anna by Westinghouse [6]. PCT effects (penalties) of +39°F and +41°F have been quantified for North Anna Units 1 and 2, respectively. No cycle specific Core Operating Limit Report (COLR) changes are required for North Anna.

Evaluations by Nuclear Safety Analysis [7] have demonstrated that the criterion in 10CFR50.46(b)(1) (i.e., PCT < 2200□F) is met for the licensing basis PCT for North Anna Units 1 and 2. No further action is required to demonstrate compliance with 10CFR50.46 requirements.

Discussion

For North Anna, the large break LOCA PCT Assessments for 10CFR50.46(a)(3)(i) Accumulation total greater than 50°F. This is a significant change, as defined in 10CFR50.46(a)(3)(i). Therefore, a 30-day report was issued to the NRC describing the large break LOCA PCT assessments [9]. The changes to UFSAR Sections 15.3.1 and 15.4.1 are in compliance with Nuclear Analysis & Fuel Implementing Procedure NAF-237 [10] which requires an update of the UFSAR in conjunction with the issuance of a 30-day report to the NRC.

Revised UFSAR Description

The changes to UFSAR Sections 15.3.1 and 15.4.1 incorporate the PCT penalties and benefits for the large break and small break LOCA which are reported via 10CFR50.46. These changes have been previously reported to the NRC in References 8 and 9. The changes to the UFSAR include the following 'generic' language:

> "In addition to the analyses presented in this section, evaluations and reanalyses may be performed as needed to address computer code errors, emergent issues or to support plant changes. The issues or changes are evaluated, and the impact on the PCT is determined. The resultant increase or decrease in PCT is applied to the analysis of record PCT. The peak clad temperatures, including all penalties and benefits are presented in Table ( ) for the large (small) break LOCA. The resultant PCT is demonstrated to be less than the 10CFR50.46(b) requirement of 2200°F."

Unreviewed Safety Question Determination

No licensing amendment or unreviewed safety question is involved.

- No increase in the probability of occurrence or consequences of an accident or malfunction will result from the implementation of the proposed changes to the North Anna Power Station UFSAR. The activity changes the UFSAR to incorporate the PCT penalties and benefits for the large break and small break LOCA which are reported via 10CFR50.46. The UFSAR changes demonstrate that the 10CFR50.46 criteria are met for LBLOCA and SBLOCA. No system, structure or component or method of operation is being changed and no new or unique accident initiators or precursors are being introduced. Therefore, implementation of these changes will not result in more severe consequences than those considered in the SAR.

- The implementation of the proposed change to the North Anna Power Station UFSAR does not create the possibility of an accident of a different type than was previously evaluated in the SAR. The activity changes the UFSAR to incorporate the PCT penalties and benefits for the large break and small break LOCA which are reported via 10CFR50.46. No system, structure or component or method of operation is being changed and no new or unique accident initiators or precursors are being introduced. Therefore, no new mechanisms for the initiation of accidents are created by the implementation of this analysis.
- The implementation of the proposed change to the North Anna Power Station UFSAR do not reduce the margin of safety. The activity changes the UFSAR to incorporate the PCT penalties and benefits for the large break and small break LOCA which are reported via 10CFR50.46. The UFSAR changes demonstrate that the 10CFR50.46 criteria are met for

LBLOCA and SBLOCA. Therefore, the margin of safety will not be reduced by the implementation of the changes.

SAFETY EVALUATION LOG
PROCEDURES
1999

S.E. #	Unit	Document	System	Description	SNSOC Date
99-SE-PROC-01	1,2	North Anna 1003, 1011, 1012, 1016, 1030 & 1035 0-OP-21.11 (P2)		Consolidation of ~300 irradiated BPRAs & placed in 3 disposable cask liners. Each liner will be placed in a TN-RAM shipping cask & prepared for shipment to Barnwell, S. C. for burial.	2-16-99
99-SE-PROC-02	1,2	1/2-MOP-8.0X series 1/2-LOG-20 0-MCM-1006-03		Updates allowed ECCS leakage to 600 cc/hr as maximum for normal conditions and 12,000 cc/hr as maximum for installing blank pancake flanges at the discharge & suction of a charging pump thus allowing charging pump maint.	2-21-99
99-SE-PROC-03	1,2	0-OP-4.5.1 (Rev. 0)		New fuel elevator basket change out in the spent fuel pool with a similar W basket.	3-04-99
99-SE-PROC-04	2	2-TOP-34.3 (R.0)		Optimizing EHC Pump Cycle Time by Positioning GV-1	3-19-99
99-SE-PROC-05	2	LDS-NAPS2		Instructions for Valve Acoustic Leak Monitoring – provides instructions for valve manipulations & data collection during an acoustic leak detection survey	3-23-99
99-SE-PROC-06	1,2	0-FCA-1 (R. 17)		Changes ensure that in the event of a control room fire, gas binding will not cause all 6 charging pumps to fail & that the station remains in compliance with 10CFR50, App. R	4-02-99
99-SE-PROC-07	1,2	0-ICM-VMS-MIS-001		Temporarily reconfigures cabinet wiring to correct for a failed VMS accelerometer & for restoring repaired or replaced accelerometers following corrective maintenance	4-29-99
99-SE-PROC-08	1,2	W.O. 404321 1-ICP-RH-F-1605 2-ICP-RH-F-2605		This generic evaluation can be used to perform maintenance on instrument loops 1-RH-FCV-1605 & 2-RH-FCV-2605 (outside containment only) system while in Modes 1-2 while still maintaining the system operable.	5-13-99
99-SE-PROC-09	1	1-OP-15.7 (Rev. 0) 1&2-OP-51.2 (R. 17 / 11) 1-OP-15.1 (Rev. 32) 1-OP-15.2 (Rev. 32) 1-OP-50.1A (Rev. 12) 1-OP-51.2A (Rev. 11) 1-MOP-50.90 (Rev. 5) 1&2-AP-35 (Rev. 11 / 10) 1-AR-D-F8 (Rev. 1) 2-AR-G-D8 (Rev. 1) 1&2-AR-G-B2 (Rev. 1) 2-AR-G-G5 (Rev. 1) 1-AR-K-B7 (Rev. 3) 2-AR-G-H3 (Rev. 1) 2-AR-G-C2 (Rev. 1) 2-AR-G-H4 (Rev. 1)		Allows a procedurally controlled temporary modification to control the installation of a fire hose between the bearing cooling & chilled water systems to provide an alternate source of cooling water supply for U-1 generator leads cooler (1-GM-E-3).	5-13-99
99-SE-PROC-10	1,2	2-MOP-6.71 (Rev. 17)		Adds steps to defeat operation of directional overcurrent relay on 1-EE-BKR-15H11 to prevent breaker from tripping open when the 1H EDG is supplying the 2J emergency bus	5-27-99
99-SE-PROC-11	1,2	1&2-GOP-4.20		New procedures for draining water from the hydrogen recombiner suction lines for 1-HC-HC-1	6-09-99
99-SE-PROC-12	1,2	2-PT-71.2Q Rev. 16, OTO-1		Installs temporary pressure gages on the AFW full flow recirc lines to take pressure drop data to enable the re-design of the existing orifice plates	6-21-99

SAFETY EVALUATION LOG
PROCEDURES
1999

S.E. #	Unit	Document	System	Description	SNSOC Date
99-SE-PROC-13	1,2	1-TOP-6.1 2-TOP-6.1 ET-SE-99-023, R. 1		Lowering of the stand-by jacket coolant water temperatures for the EDG engines during warm weather months (See 99-SE-OT-21)	7-01-99
99-SE-PROC-14	2	0-MCM-0450-01 (Rev. 2-P1)		Incorporates steps for back seating pressurizer spray valve 2-RC-PCV-2455A in the closed position IAW the vendor technical manual in an attempt to stop leakage.	8-03-99
99-SE-PROC-15	1,2	1-OP-21.6 2-OP-21.6		Allows an alternative method to fill the chilled water expansion tank if the normal flow path is unavailable	8-04-99
99-SE-PROC-16	1,2	0-ICM-SEC-MIS-001 W.O 402020-02 Deficiency Card IC 990129 VPAP-1403		Temporarily installs a microwave detector in Zone 7, West End Security Access Building, to determine if use of this unit will eliminate false alarms	8-31-99
99-SE-PROC-17	2	2-PT-61.1B (R. 4)		Installation of temporary support instrumentation for the ILRT as a procedurally controlled TM. Allows spare conductors on electrical containment penetrations to be used to provide connections for the temporary instrumentation strings	8-31-99
99-SE-PROC-18	1,2	1&2-PT-61.1K 2-AP-17.11A		Installation of temporary mechanical blocks to maintain static conditions inside containment during the ILRT.	8-31-99
99-SE-PROC-19	1,2	0-OP-51.5 (Rev. 8 - P1)		Connects a hose to the surge tank drain valve from the domestic water system to allow makeup capability to the chilled water surge tank if required while the normal condensate fill header is unavailable.	9-09-99
99-SE-PROC-20	2	2-MOP-26.125 (Rev. 0)		Aligns 2-EP-MCC-2A1-1 for maintenance & returns it to service following maintenance. Also addresses installation of a jumper from 2-EP-MCC-2C1-1 to power reactor containment lighting panel 2RC4.	9-10-99
99-SE-PROC-21	1,2	1-OP-50.2 (Rev. 11)		Adds a section to control a temporary modification, which is composed of a mechanical jumper between the fire protection system & the BC water tower basin. A hose will be installed from hose house "L" into the tower basin to allow makeup to the basin during times when no BC water makeup pump is available.	9-14-99
99-SE-PROC-22	1,2	1-OP-10.2 (R5, P1)		Adds a temporary modification to the procedure as an alternate method for loop stop valve leakage recovery if the PDTT pump or the gas stripper discharge pump fails.	9-18-99
99-SE-PROC-23	2	2-PT-61.1 (Rev. 10)		Allows use of a temporary air hose to provide operating air to 2-CV-TV-200 during the depressurization phase of the ILRT	9-23-99
99-SE-PROC-24	2	2-PT-210.19 (Rev. 19)		Allows Cv testing on the accumulator discharge check valves instead of performing acoustical testing to verify the check valves can actuate to their full open position	9-24-99
99-SE-PROC-25	2	2-OP-8.2.3 (OTO1)		Controls the use of a deborating demineralizer, 2-CH-I-3A or 3B, as an anion bed to reduce the U2 RCS sulfate concentration	10-07-99

99-SE-PROC-01

Description

North Anna 1003, "Procedure for Processing of Irradiated Hardware Using the Mobile Rod Cutter"
North Anna 1011, "Procedure for Processing of Irradiated Hardware Using the Light Crusher Shear"
North Anna 1012, "Procedure for General Workflow of Spent Fuel Pool Cleanout Projects"
North Anna 1016, "Handling of the TN-RAM Shipping Cask Using the Pool Flooding Method"
North Anna 1030, "Operation of the Eberline R-07 for Waste Characterization"
North Anna 1035, "Procedure for Handling Spent Fuel Pool Waste Liners"
0-OP-21.11, Rev 11, P2, "Fuel Building Ventilation Lineup for Evolutions over the Spent Fuel Pool"
Approximately 300 irradiated BPRAs will be consolidated and placed in 3 disposable cask liners. Each liner will be placed in a TN-RAM shipping cask and prepared for shipment to Barnwell, S. C. for burial. This work will take place in the Fuel and Decontamination buildings.

Summary

This change involves the consolidation (or cutup) of BPRAs into liners that are then placed into TN-RAM shipping casks for shipment offsite. TN-RAM cask liners are right cylinders constructed of epoxy coated carbon steel, weighing less than 9500 pounds loaded, and having a burial volume of 57.8 (110" x 34") cubic feet. The TN-RAM irradiated hardware transport cask is also a right cylinder (129" x 52") steel and lead cask with wood filled impact limiters used during transport. Shielding is equivalent to 7.1 inches of lead and maximum loaded weight is 80,000 pounds. Payload limits are 300 watts of decay heat and 14,000 curies of cobalt-60. It is licensed by the NRC for the shipment of Type B low-level radioactive material. Other equipment includes a 4'x4'x7' hydraulic Light Crusher Shearer and a 3'x3'x10' Mobile Cutter.

The major issues considered include the following:

a. Drop of a loaded liner, or an empty or loaded TN-RAM cask into the cask loading area of the spent fuel pool. These analyses assume that the liner is dropped from approximately twelve feet above the floor of the cask loading area during placement of the liner into the TN-RAM cask. The analysis for the drop of an empty or loaded TN-RAM cask assumes that the cask has been lifted to a height of six feet above the operating deck of the Fuel Building. The procedures for handling of the liner and cask have included these lift height restrictions.
b. Malfunction of the light crusher shearer so that its hydraulic fluid leaks into the spent fuel pool. This shearer uses less than ten gallons of water as the hydraulic fluid, so leakage into the pool will not affect water chemistry or have a significant effect on the boron concentration of the 400,000 gallons of water in the spent fuel pool.
c. As evaluated in ET No. SE-98-0003, Rev. 0, if more than 1,000 gallons of PG water is used to rinse the outer surface of the TN-RAM cask during insertion and removal from the spent fuel pool, sampling of the pool water is needed to ensure the boron concentration remains greater than 2300 ppm. A flow totalizer will be used during rinsing of the cask to ensure that the addition of PG water to the spent fuel pool is monitored.
d. Moving the BPRAs from their storage location to the shearer located in the cask loading area will require that they be carried over irradiated fuel assemblies. An evaluation using 400 pounds carried up to 36 inches over irradiated fuel shows that the drop of this load will not damage the fuel assemblies and cause the release of radioactive material from the fuel rods. The estimated weight of a BPRA and lifting tool is less than 200 pounds. Fuel assemblies are not being lifted as part of this activity, and the evaluation shows no fuel damage from dropping a BPRA, therefore, a fuel handling accident is not possible as part of this activity.
e. Experience during the consolidation process at Surry indicates that a small amount of borosilicate debris falls to the spent fuel pool floor around the liner. The quantity of this debris is small enough that pool water clarity is not affected, and cleanup will not be burdensome.

The probability of occurrence for the accidents or malfunctions considered in Appendix 15A of the UFSAR is not increased. The TN-RAM cask, its handling equipment and the equipment to handle liners will meet NUREG-0612 requirements, and the weight of these items is well below the rated capacity of the cask crane.

The consequences of the accidents or malfunctions considered in Appendix 15A of the UFSAR are not increased. Analyses show that an accident or malfunction of equipment that causes the drop of a 5-ton liner or 40-ton TN-RAM cask does not result in damage to the spent fuel pool greater than that previously evaluated for spent fuel storage casks.

During a seismic event, the shearer/liner setup or the TN-RAM cask could be affected enough to tip towards the wall of the cask loading area. The consequences of this event, however, are bounded by the consequences from the drop of the cask or liner and subsequent tipover. These consequences are in turn bounded by the consequences from the tipover of a spent fuel cask.

The possibility for an accident or malfunction of a different type is not created. Appendix 15A of the UFSAR includes an evaluation of the equipment malfunctions possible during fuel cask handling, and the handling of the liners and the TN-RAM cask is bounded by this evaluation. These malfunctions include failure of the cask crane, cask lifting yoke or cask trunnion.

Analyses show that the drop of a 5-ton liner or 40-ton TN-RAM cask does not result in damage to the spent fuel pool greater than that previously evaluated for spent fuel storage casks. Therefore, the margin of safety for the design of the spent fuel pool is not reduced, and an unreviewed safety question does not exist.

99-SE-PROC-02

Description

- 1/2-MOP-8.0X Series Procedures, 1/2-CH-P-1A/B/C, "A/B/C" Charging Pump Procedures.
- 1/2-LOG-20, ECCS Leakage Log.
- 0-MCM-1006-03, Installation and Removal of Pancake on Suction and Discharge Piping for Charging Pump Maintenance.

This Safety Evaluation covers the new more restrictive leakage limits imposed by JCO C-98-01 and ET SE-98-107, Rev.1 as they are applied to the above procedures for changes previously reviewed by 97-SE-PROC-36 Rev. 1.

Changes to the above procedures update the allowed ECCS leakage to the values of 600 cc/hr as the maximum for normal conditions and 12,000 cc/hr as the maximum for installing blank pancake flanges at the discharge and suction of a charging pump thus allowing charging pump maintenance. The 600 cc/hr value is lower because the Auxiliary Building Central Exhaust Ventilation damper controls are not seismic Class I with Class 1E power. The 600 cc/hr value is conservative and ensures that the licensing basis dose limits will not be exceeded. The upper limit of 12,000 cc/hr limit is lower to ensure that the design basis dose limits will not be exceeded. These changes are consistent with JCO C-98-01 and ET SE-98-107, Rev.1.

Summary

This evaluation supports changes to 1-MOP-8.01 Rev. 29, 1-MOP-8.02 Rev. 27, 1-MOP-8.03 Rev. 25, 2-MOP-8.01 Rev. 24 P1, 2-MOP-8.02 Rev. 23, 2-MOP-8.03 Rev. 25, 1-LOG-20 Rev.1, and 2-LOG-20 Rev.1. The MOP's are for the removal and return of charging pumps to and from maintenance. The LOG's are for keeping track of ECCS leakage outside of containment.

The decreased ECCS leakage limits do not affect 0-MCM-1006-03, Installation and Removal of Pancake on Suction and Discharge Piping for Charging Pump Maintenance. The MCM was created to cover the blind flange installation and removal sections previously included in the Charging Pump MOPs (1/2-MOP-8.0X series). This Safety Evaluation reviews that installation, as did its predecessors, 97-SE-PROC-11, 33, 34, 36, and 36 Rev. 1. The MCM does not cite the leakage limits and therefore does not require changing.

Previous safety evaluations (97-SE-PROC-11, 33, 34, 36, and 36 Rev. 1) have covered the methodology for charging pump maintenance with regard to leakage past the pump discharge and suction isolation valves and the impact of that leakage on total ECCS leakage outside of containment. This evaluation focuses only on the new more restrictive leakage limits imposed by JCO C-98-01 and ET SE-98-107, Rev.1. The 600 cc/hr lower ECCS leakage limit is has been decreased because the Auxiliary Building Central Exhaust Ventilation damper controls are not seismic Class I with Class 1E power. The 600 cc/hr value is conservative and ensures that the most limiting licensing basis dose limit, 19 Rem thyroid in the Control Room during a LOCA, will not be exceeded with Auxiliary Building Central Exhaust unfiltered. The upper ECCS leakage limit of 12,000 cc/hr has been decreased to ensure that the most limiting design basis dose limit, 30 Rem thyroid in the Control Room during a LOCA, will not be exceeded with Auxiliary Building Central Exhaust filtered.

Measurements of leakage past the suction MOV's are taken at normal charging pump suction pressure. However, the leakage past the suction MOV's will be greater during accident conditions due to the charging pump suction pressure being greater. Thus, the measured suction leakage must be multiplied by a correction factor which is the square root of the accident condition suction pressure divided by the suction pressure at which the leakage measurement was taken. In the equations presented below, CF is the correction factor, and is equal to SQR (160.8/suction pressure in psig).

Concerning the need to install discharge and/or suction blank flanges:

IF [(LOG-20 leakage)+CF (suction PI ICV drain leakage)+(discharge drain leakage)+(allowance for new leakage)]<600 cc/hr, THEN no flanges need to be installed, and charging pump maintenance leakage is entered onto LOG-20.

IF [(LOG-20 leakage)+CF (suction PI ICV drain leakage)+(discharge drain leakage)+(allowance for new leakage)]>=600 cc/hr AND [(LOG-20 leakage)+CF (suction PI ICV drain leakage)+(allowance for new leakage)]<12,000 cc/hr, THEN the installation of one or both blank flanges can be performed. After a flange is installed, leakage from that isolation is assumed to be zero.

IF [(LOG-20 leakage)+CF (suction PI ICV drain leakage)+(discharge drain leakage)+(allowance for new leakage)]>=12,000 cc/hr, THEN maintenance CANNOT be performed.

A suitable value for the allowance for new leakage may possibly be based on the highest recent corrected leakage recorded on the LOG-20 for either unit. It is also acceptable for the allowance to be zero.

Because of the nonconforming condition of Auxiliary Building Exhaust, the additional compensatory action of aligning exhaust through the charcoal filter is required. In the previous Safety Evaluations cited, alignment was performed as a good practice. Therefore, steps to align exhaust through the filters have already been incorporated into the MOP's.

Compensatory actions to close the flange openings in the event of a LOCA ensure the probability of occurrence of an accident is not increased and the possibility of a different type accident is not created. Compliance with the leakage limits ensures doses will not exceed analyzed values. Thus, there is no increase in consequences. The activity will not affect the operability of the remaining HHSI pumps. Therefore, the activity does not create an unreviewed safety question.

99-SE-PROC-03

Description

0-OP-4.5.1 Rev. 0 "New Fuel Elevator Basket Change Out"

This procedure will be used as a procedurally controlled Temporary Modification in accordance with VPAP-1403, "Temporary Modifications", to temporarily replace the new fuel elevator basket in the spent fuel pool with a similar Westinghouse basket. The replacement basket is functionally equivalent to the original equipment basket, but has additional features, which accommodate Westinghouse fuel inspection and reconstitution equipment.

Summary

This safety evaluation was prepared for procedure 0-OP-4.5.1 Rev. 0, "New Fuel Elevator Basket Change Out". This procedure will be used as a procedurally controlled temporary modification in accordance with VPAP-1403, "Temporary Modifications". The purpose of the procedure is to replace the original equipment fuel elevator basket with a functionally equivalent Westinghouse basket. The Westinghouse basket has additional design features, which facilitate handling of individual fuel rods (removing and replacing fuel rods in the fuel assembly after the fuel assembly top nozzle is removed). Handling of individual fuel rods in this manner is required for individual fuel rod inspection and/or fuel reconstitution. Previously this temporary modification was performed at North Anna and Surry using Westinghouse vendor procedure 0-FH-FEB-001, "Temporary New Fuel Elevator Replacement Basket".

Fuel rod inspection and fuel assembly reconstitution programs are performed by gaining access to the fuel rods by either removing the fuel assembly's top and/or bottom nozzle. This requires either large cumbersome mechanical equipment to be installed in the spent fuel pool such as Westinghouse's Multipurpose Fuel Repair System (MFRS) or the replacement of the new fuel elevator basket. The principle advantages of using a replacement new fuel elevator basket versus equipment such as the MFRS are: the replacement basket is a seismic class 1 structure, it does not involve large pieces of specialized equipment (i.e. no heavy loads), and requires less time to install. The only disadvantage to using a replacement new fuel elevator basket instead of equipment like the MFRS is that the replacement basket does not allow access to the fuel rods through the fuel assembly bottom nozzle.

The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased as a result of this change. The fuel elevator basket will be temporarily replaced with a generic Westinghouse basket. The temporary replacement basket is functionally equivalent to the original equipment basket. Either basket is capable of holding an irradiated fuel assembly. Other than replacing the basket, there will be no change to any other major component of the fuel elevator, specifically the cable, winch, motor and track. The assumptions used in the analysis for the fuel handling accident in the fuel building remain bounding for handling irradiated fuel in the elevator basket. All fuel handling will be performed in accordance with approved fuel handling procedures. 0-OP-4.5.1 requires that the mechanical stop be installed with the replacement new fuel elevator basket and that a functional check of the stop be performed by using the DUMMY fuel assembly and measuring the depth of water over the DUMMY assembly with the elevator near the mechanical stop. This will assure that a minimum of 7 feet of water shielding exists over the active fuel in an irradiated fuel assembly as required by UFSAR Sections 12.1.2.5, "Fuel Handling Shielding" and 9.1.4.6.4 "Radiation Shielding".

The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not increased. The only equipment that will be used for this temporary modification is the fuel handling tool and fuel elevator with the replacement fuel elevator basket. The basket is a temporary replacement and is functionally equivalent to the original equipment basket. The limiting failure of any fuel handling equipment is the fuel handling accident outside of containment described in Section 15.4.5 of the UFSAR.

The margin of safety as defined in the basis for any technical specification is not reduced as a result of this change. This change temporarily replaces the fuel elevator basket with a Westinghouse generic fuel elevator basket. The replacement basket is functionally equivalent to the original equipment basket with the exception that the Westinghouse basket accommodates fuel inspections with irradiated fuel in the basket. No restrictions preclude the handling of irradiated fuel in the fuel elevator basket. 0-OP-4.5.1 requires the mechanical stop to be installed with the replacement basket in order to prevent lifting irradiated fuel assemblies to an elevation that would allow less than 7 feet of water shielding as required by the UFSAR. All fuel handling will be performed in accordance with approved site procedures.

99-SE-PROC-04

Description

Temporary Operating Procedure 2-TOP-34.3, Revision 0, "OPTIMIZING EHC PUMP CYCLE TIME BY POSITIONING GV-1"

This Temporary Operating Procedure 2-TOP-34.3, "OPTIMIZING EHC PUMP CYCLE TIME BY POSITIONING GV-1," allows the partial closing of governor valve #1 (2-MS-GOV-1A) with the GV-1 CLOSE pushbutton to optimize the operation of the EHC fluid system. Governor valve #4 will come further open to maintain full power operation of the Unit 2 main turbine, if required. However, 2-TOP-34.3 controls the positioning of governor valve #1 to prevent affecting the steam flow for Unit 2.

Summary

MAJOR ISSUES:

Following the 1998 Unit 2 refueling outage when power level was increased to 100% and governor valve #1 was full open, the EHC fluid flow through the servo valve and actuator for governor valve #1 was found to be significantly greater than the normal value. Reducing the signal very slightly to the servo valve improves the situation significantly. The change in valve sequencing evaluated herein will be accomplished by using the governor valve test circuitry. By depressing the GV 1 CLOSE pushbutton on the turbine control console, governor valve #1 will close and governor valve #4 will open to control turbine load (only if required) in the "operator auto" turbine operating mode. An Unreviewed Safety Question evaluation is required to assess the modified configuration.

JUSTIFICATION:

This change should be allowed as it will be in compliance with the Technical Specifications, the Safety Analysis Report, and the design basis requirements of the Unit 2 main turbine and all associated plant systems. The SAR does not describe the particular governor valve sequence that is presently in use at North Anna Power Station. The turbine can be set up to operate under a variety of valve sequences with the approval of the turbine manufacturer, Westinghouse Electric Corporation. This particular sequence has been reviewed and approved by Westinghouse to reduce vibration of the governor valve #4 and the turbine generator bearings during power operations. However, the intent of 2-TOP-34.3 is to optimize EHC fluid system operation. Nonetheless, the evaluation by Westinghouse applies to this activity. The overall operation of the turbine is unchanged and no changes are being made to any turbine protection circuits. Further, governor valve #1 will still receive turbine runback signals while governor valve #1 is partially closed. Thus, all turbine trips and runbacks remain capable of performing their intended functions in the configuration addressed by this Safety Evaluation.

UNREVIEWED SAFETY QUESTION ASSESSMENT:

1. Condition does not increase the probability of occurrence or the consequences of an accident or malfunctions of equipment important to safety and previously evaluated in the Safety Analysis Report.

Governor valve #1 will be maintained at a constant position using the GV-1 CLOSE pushbutton, which results in governor valve #4 automatically coming further open to maintain full power operations, if required. This activity does not increase the probability of any turbine or main steam related accidents since all of the governor valves will still be capable of closure from turbine trip signals. Proper turbine protection requires that the turbine be isolated from the steam supply in the event of an accident.

2. Condition does not create a possibility for an accident or malfunction of a different type than was previously evaluated in the Safety Analysis Report.

This activity does not affect the ability of the main turbine to trip, isolation of steam from the during a trip, or control of the turbine during a transient. There is no accident that requires additional steam to be added to the turbine to control a transient.

3. Condition does not reduce the margin of safety of any part of the Technical Specifications as described in the bases section.

Technical Specification margin as it relates to the main turbine is concerned with isolation of steam flow from the turbine in the event of a turbine trip or overspeed condition. Neither of these is affected by partially closing governor valve #1 using the GV-1 CLOSE pushbutton. Thus, the changes of Revision 0 to 2-TOP-34.3 do not reduce the margin of safety of any part of the Technical Specifications as described in the Basis section.

99-SE-PROC-05

Description

Vendor Procedure LDS-NAPS2, Instructions For Valve Acoustic Leak Monitoring, Leak Detection Services, Inc.

Acoustic leak detection is to be performed by vendor technicians using non-intrusive equipment provided by Leak Detection Services, Inc. while Unit 2 is in normal operation at or near full power. During the survey process, acoustic signals are provided by probes, in contact with component surfaces, to a computerized data acquisition and analysis unit. The valve manipulations and data collection activities are directed by the computer program, following the test plans described in the attachments to the procedure. All valve manipulations will be performed by plant operators, and all data collection activities will be performed by qualified vendor technicians.

Summary

This procedure directs valve manipulations and data collection for an ultrasonic survey of numerous secondary plant valves and traps to identify potential leak-by detrimental to plant thermal efficiency. The survey involves collecting data from probes in contact with component surfaces under different conditions to allow identification and relative quantification of leakage. Test plans are included for all applicable geometric alignments of components to be tested. Typically, initial reading are taken on a normally closed control valve, then the associated manual isolation valve(s) are closed and the control valve is cycled open and closed while collecting data. The system is then returned to its normal alignment.

Most of the valves involved are non-safety related secondary vent, drain, divert, and trip valves and traps which do not have TS or TRM operability requirements. The only components which do have nuclear safety requirements or are included in the accident analyses are the Condenser Steam Dumps (2-MS-TCV-2408A through G).

All activities directed by this procedure are within the bounds of normal plant operation as described in the SAR. Valve manipulations will be performed by qualified plant operators in accordance with normal station policies

This survey does not create an Unreviewed Safety Question for the following reasons:

All normally isolated lines will remain isolated during the survey. Those valves which impact the accident analyses are operated within the requirements of the Licensing documents. None of the valve manipulations described will increase the probability of any accident.

No more than one train of any system relied on for accident mitigation is inoperable at a time during this survey. Failure of a single steam dump, either in the open or closed position, is allowed in the accident analyses. None of the valve manipulations described will increase the consequences of any accident, nor will failure of any component during the survey.

All components being surveyed will be under the direct control of a plant operator. In the event of any unexpected transients or indications, the affected systems can be immediately returned to their normal configuration. If the component being surveyed fails, the affected line will remain isolated and the appropriate actions initiated as required by the Licensing documents. In the event that a malfunction occurs on another component than that being surveyed, this activity will not increase the consequences of the malfunction.

A potential exists for effects on reactor power if a line containing a closed valve with an existing leak is isolated or unisolated. The potential effects are small; however, the procedure contains sufficient controls to ensure that no change in reactor power occurs which could exceed the licensing basis or reduce the ability of the operators to control the plant.

Since no systems will be operated outside their design basis, the margin of safety as described in the T.S. will not be affected. No change to any T.S. requirements or License conditions is required by the test.

A similar survey was conducted on Unit 1 in 1998 under Vendor Procedure LDS-NAPS1 and Safety Evaluation 98-SE-PROC-28. No adverse effects on unit operation occurred, and a substantial gain in unit MWe output resulted from repair of the leaking valves identified by the survey.

99-SE-PROC-06

Description
0-FCA-1, "Control Room Fire", Rev. 17
Revisions to 0-FCA-1 are being made to ensure that gas binding of charging pumps is prevented if possible and mitigated if it does occur. Prior to leaving the control room, the non-running charging pumps will be placed in the Pull-To-Lock position, the RWST suction valves will be opened, and the VCT suction valves will be closed. Once control is established at the aux shutdown panel, proper charging pump operation will be verified. Proper alignment of the RWST and VCT suction valves will be verified. If the running charging pump has become gas bound, the non-running pumps will be vented and then placed in service.

Summary
DR N-99-795 identified the potential for gas binding to occur within all Charging Pumps during a control room fire. Fire Contingency Action 0-FCA-1, "Control Room Fire" directs the Operators to perform several actions to safely shutdown the plant. In its existing form, 0-FCA-1 may not ensure that charging flow is established from the RWST before the VCT is drained and gas binding occurs within the running charging pumps and those started subsequently.

License condition 2.D.(3).u allows the Licensee to make changes to the fire protection program if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire. The ability to achieve and maintain safe shutdown in the event of a fire will not be degraded. The recommended changes enhance the "Control Room Fire" shutdown procedure to ensure gas binding will not occur in all six charging pumps. It also will ensure that in the event that a running charging pump does become gas bound, the non-running pumps will be properly vented prior to being placed in service. As a result, the procedure changes do not adversely affect the ability to achieve and maintain safe shutdown.

The current North Anna License condition allows the licensee to make changes to the fire protection program without NRC approval if those changes do not adversely affect that ability to achieve and maintain safe shutdown in the event of a fire. The ability to achieve and maintain safe shutdown will not be adversely affected since the changes enhance the ability to achieve and maintain safe shutdown. 10CFR50, Appendix A, General Design Criteria (GDC) 3, discusses the minimum level of fire protection that must be maintained at the station. This change will not eliminate any fire protection system or equipment. All systems and equipment relied upon to meet Appendix R requirements will continue to be in place and operable. There will be no adverse impact on the station's compliance with GDC 3. This change does not create or impact an unreviewed safety question since this is a procedural enhancement to ensure gas binding will not occur, and if it does, the consequences will be mitigated, within all six charging pumps while performing safe shutdown actions during a Control Room fire.

10CFR50, Appendix R, requires that at least one train of systems necessary to achieve and maintain hot shutdown conditions shall be free of fire damage. These changes being made to 0-FCA-1 ensure that this criterion is met.

99-SE-PROC-07

Description

0-ICM-VMS-MIS-001

To provide a procedure for temporarily reconfiguring cabinet wiring to correct for a failed VMS (Valve Monitoring System) accelerometer and for restoring repaired or replaced accelerometers following corrective maintenance. This procedure utilizes an installed spare accelerometer which is functionally tested along with the normal channels during refueling outages.

Summary

This Safety Evaluation describes a procedure which controls a Temporary Modification to the Pressurizer Safety Valve Monitoring System. Specifically, a spare parallel accelerometer used for valve position will be substituted for the current accelerometer due to erratic behavior of the existing channel. Currently, this procedure will cover the Unit 2 "C" Pressurizer Safety Valve, but it will be upgraded to include all six Pressurizer Safety Valves.

UFSAR section 7.6.7 provides a description of the Acoustic Valve Monitoring System (VMS) which was required to be installed by USNRC Reg. Guide 1.97, Post Accident Monitoring. The purpose of the acoustic VMS for the Pressurizer Safety Valves (SV) is to provide reliable indication and alarms in the Main Control Room (MCR) whenever a Pressurizer SV is not fully closed. At this time the accelerometer that provides input to this monitoring system for the Unit 2 "C" valve is behaving erratically and is bringing in spurious alarms in the MCR. Temporary Modification N2-1127 has been installed to swap to the spare accelerometer for the Unit 2 "C" Pressurizer SV. This procedure will provide instructions for doing the same evolution on the other valves as necessary.

The existing spare accelerometers are independent accelerometers that provide identical monitoring capabilities and are in the same proximity of the active accelerometers. This procedural jumper will still provide the same outputs as the now active accelerometer to components such as the Plant Computer System (PCS) and the Annunciator 1/2-AR-C-D1. With regard to post-installation operability, the spare accelerometers are "ping" tested during refueling outages; therefore, the sensing device is verified to be good. Continuity of the jumpered circuit will be ensured by verifying the circuit output is greater than zero. The Tech. Spec. required channel check will be performed before the jumpered circuit is declared operable.

Since no physical changes to the RCS system or it's pressure boundary are required to be made, neither the design, operation, or margin of safety of the RCS System is to be affected. The Operating License nor Technical Specifications will not be adversely affected.

This procedure will not constitute an Unreviewed Safety Question since it will not increase the probability or the consequences of the accidents previously evaluated, nor will it increase the possibility of any new or unique accident precursors. The modification performed by the procedure will not create the possibility of an accident of a different type either.

This procedure is utilizing a design feature that is described in the UFSAR by swapping which accelerometer will provide the input signal for plant monitoring of the pressurizer safety valves. The channel will be swapped from the active accelerometer to the spare one for better indication.

99-SE-PROC-08

Description
None – This evaluation is being performed for maintenance on instrument loops 1-RH-FCV-1605 and 2-RH-FCV-2605 (outside containment only) system while not in use (Modes 1-2) and for Corrective Maintenance WO# 00404321.
Maintenance on instrument loops 1-RH-FCV-1605 and 2-RH-FCV-2605 (outside containment only) system while in Modes 1-2.

Summary
The purpose of this Safety Evaluation is to ensure that on-line maintenance on instrument loops 1-RH-FCV-1605 and 2-RH-FCV-2605 (outside containment only) system while in Modes 1-2 can occur on the RHR system. The maintenance will not affect OPERABILITY because the system can be returned to service prior to being needed for safe shutdown of the reactor. The RHR system is OPERABLE since it is capable of being placed in service during maintenance within 4 hours, and Administrative controls are in place to ensure that the system can be in service within 4 hours. Therefore, the RHR system will be fully OPERABLE pursuant to T.S. 3.7.9.1 while performing maintenance on instrument loops 1-RH-FCV-1605 and 2-RH-FCV-2605 (outside containment only) system while in Modes 1-2. There are no unreviewed safety questions involved with performing the proposed on-line maintenance on the RHR system.

The RHR system is designed to maintain core cooling in Modes 4-6. The system is placed in service when RCS pressure and temperature are 418 psig and 320°F, respectively. It takes approximately 4 hours to cooldown from 547°F to 320°F. Therefore, the RHR system is not needed until approximately 4 hours after shutdown, thus allowing enough time for maintenance on instrument loops 1-RH-FCV-1605 and 2-RH-FCV-2605 (outside containment only) to be returned to service prior to placing RHR in service.

The heat exchanger bypass valves, 1-RH-FCV-1605 and 2-RH-FCV-2605, fail closed on a loss of instrument air or power. This would then divert all of the flow through the heat exchangers. To regulate the rate of cooldown, 1-RH-HCV-1758 and 2-RH-HCV-2758 can control the flow from the heat exchangers. With respect to the Technical Specifications for RHR, TS 3.9.8.1 requires one RHR loop to be OPERABLE and one RHR loop to be operating. This specification is only applicable to Mode 6 with greater than or equal to 23 feet of water above the vessel head. Also, TS 3.9.8.2 requires two independent RHR loops to be OPERABLE with one of the loops operating with less than 23 feet of water above the reactor vessel head. This specification is also only applicable in Mode 6 and does not apply to Mode 1 or 2 FCV instrument loop maintenance outside of containment. Technical Specification 3.1.1.3.1 is assured because in Modes 1 and 2, since at least one RCP will be in service.

An evaluation performed by Virginia Power determined that RHR System OPERABILITY in MODES 1,2, and 3 is a non-significant risk contributor to core damage frequency and offsite releases. The RHR System is not assumed to be OPERABLE in MODES 1, 2, or 3 for any scenarios modeled in the North Anna Power Station site-specific PRAs and per NUREG 1431.

The proposed changes have been reviewed against the criteria of 10 CFR 50.59. This review concluded that these changes raise no unreviewed safety questions. The basis for this determination is as follows:

1) The probability of occurrence or the consequences of an accident or malfunction of equipment important to the safety previously evaluated are not increased. The safety related systems on the RHR would function if necessary and the system itself could be returned to service quickly if needed.

2) The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created. This is only to clarify that the proposed on-line maintenance can occur on the RHR system.

3) The margin of safety as defined in the technical specifications is not reduced.

99-SE-PROC-09

Description

Operating Procedure 1-OP-15.7, "COOLING 1-GM-E-3 WITH CHILLED WATER," Rev. 0
Operating Procedure 1-OP-15.7, "COOLING 1-GM-E-3 WITH CHILLED WATER," Rev. 0
Operating Procedures 1-OP-51.2 and 2-OP-51.2, "CHILLED WATER SYSTEM: STEAM CHILLER OPERATION," Rev. 17 and 11
Operating Procedure 1-OP-15.1, "OPERATION OF THE MAIN TURBINE," Rev. 32
Operating Procedure 1-OP-15.2, "MAIN GENERATOR OPERATION," Rev. 32
Operating Procedure 1-OP-50.1A, "VALVE CHECKOFF--BEARING COOLING WATER," Rev. 12
Operating Procedure 1-OP-51.2A, "VALVE CHECKOFF-CHILLED WATER," Rev. 11
Maintenance Operating Procedure 1-MOP-50.90, "MASTER TAGOUT FOR BEARING COOLING," Rev. 5
Abnormal Procedures 1-AP-35 and 2-AP-35, "LOSS OF CONTAINMENT AIR RECIRCULATION COOLING," Rev. 11 and 10
Annunciator Response Procedures (all Rev. 1, unless otherwise noted):
1-AR-D-F8, "COND TUBE CLEAN PIT HI LEVEL"
2-AR-G-D8, "CHILLED WTR SURGE TK LVL HI-LO"
1,2-AR-G-B2, "CD TO AIR RECIRC CLRS HI-LO TEMP"
2-AR-G-G5, "CD PP 4A 4B 4C AUTO TRIP"
1-AR-K-B7, "GEN LEADS COOLING TROUBLE," Rev. 3
2-AR-G-H3, "CHILLER FDR BKR AUTO TRIP"
2-AR-G-C2, "MECH CD CIRC PP DISCH LO PRESS"
2-AR-G-H4, "MECHANICAL CHILLER TRIP"

This Safety Evaluation addresses a "Procedurally Controlled Temporary Modification" (ref. VPAP-1403, Section 6.3) to control the installation of a fire hose between the bearing cooling (BC) and chilled water (CD) systems to provide an alternate cooling water supply for the Unit 1 generator leads cooler (1-GM-E-3). As such, the requirements for the installation of this Temporary Modification are delineated in new Operating Procedure 1-OP-15.7. Numerous other procedures, as listed in Block 4, require revision to reflect this change. Permanent 3-inch flanged connections with isolation valves will be installed in the BC and CD piping systems prior to this Temporary Modification per DCP 99-133. The cross-connect piping will be permanently installed per DCP 99-134, if required. The connection to the CD system is in the west end of the Unit 1 Turbine Building basement and the connection to the BC system is on the mezzanine level above. The impact of a leaking hose or flange has been walked down and evaluated to be satisfactory.

Summary

MAJOR ISSUES:

This Safety Evaluation addresses a Temporary Modification (VPAP-1403, Section 6.3) to control the installation of a fire hose between the bearing cooling (BC) and chilled water (CD) systems to provide an alternate cooling water supply for the Unit 1 main generator leads cooler (1-GM-E-3). Permanent 3-inch flanged connections with isolation valves will be installed in the BC and CD piping systems prior to this Temporary Modification per Design Change Package (DCP) 99-133 for this purpose. Two (2) 70-foot long sections of 3-inch or 4-inch nominal diameter, 150 lb. standard woven-jacketed, rubber-lined fire hose (ref. NFPA 1961, "Standard on Fire Hose," 1987 Edition) fabricated with 150 lb. pipe flange ends will be utilized for this evolution (one supply and one return). The cross-connects will be permanently installed with piping per DCP 99-134. The connection to the CD system at the Unit 1 steam chiller outlet is in the overhead of the west end of the Turbine Building basement and the connection to the BC system is on the mezzanine level above.

This Temporary Modification will provide an alternate source of cooling water will be available for the Unit 1 generator leads cooler (1-GM-E-3). Following modification of the moisture separator reheaters (MSRs) during the 1998 refueling outage and implementation of DCP 98-007 for feedwater flow calorimetric, Unit 1 electrical output was increased about 20 MWe. This increase in electrical load increased the heat load on the isophase bus duct cooling system and highlighted the limitations of its capability. Specifically, recent hot weather necessitated a Unit 1 ramp to about 98% power to maintain generator output conductors within the specification of 100°C. While the upper limit was subsequently raised to 105°C, concerns persist related to the capability to stay within this limit during summer weather. Therefore, the purpose of implementing this Temporary Modification is to maintain stable, full power operations of Unit 1 for normal summer conditions. An Unreviewed Safety Question evaluation is required to assess the modified configuration.

JUSTIFICATION:

This change should be allowed as it will be in compliance with the Technical Specifications, the Safety Analysis Report, and the design basis requirements of the Unit 1 main turbine-generator and all associated plant systems. The SAR does not describe cross-connecting the BC and CD piping systems. The installation of a fire hose between these systems in the Turbine Building to provide an alternate source of cooling water for the Unit 1 isophase bus duct cooling system will result in a different configuration for these systems. However, the installed valves per DCP 99-133 permits Operations to keep the systems isolated from one another. Revisions to the applicable procedures listed in Block 4 of this evaluation have been completed to control these changes and react to a postulated hose break. Therefore, this Temporary Modification does not adversely effect any safety or non-safety related equipment. The overall operation of the plant is unchanged and no changes are being made to any protection circuits.

Only the mechanical chiller (2-CD-MR-1) will supply chilled water while the alternate source of cooling water to the Unit 1 isophase bus duct system is connected per this Temporary Modification. Operating Procedure 1-OP-15.7, "COOLING 1-GM-E-3 WITH CHILLED WATER," includes requirements that will not allow operations to supply the Unit 1 generator leads cooler with either the Unit 1 or 2 steam chiller. If it is desirable to use the steam chillers to supply the Unit 1 generator leads cooler, further engineering evaluations must be performed to determine the exact capacity of the steam chillers.

UNREVIEWED SAFETY QUESTION ASSESSMENT:

1. Condition does not increase the probability of occurrence or the consequences of an accident or malfunctions of equipment important to safety and previously evaluated in the Safety Analysis Report.

The alternate source of cooling water for the Unit 1 isophase bus duct system will have no adverse impact on plant operation. This change should actually improve the temperatures of the isophase bus conductors, reducing the likelihood that a unit load reduction would be required due to hot weather (ref. 1-AR-K-B7). In addition, this activity does not increase the probability of any turbine or main steam related accidents since all of the turbine trip signals will remain unaffected. Proper turbine protection requires that the turbine be isolated from the steam supply in the event of an accident.

2. Condition does not create a possibility for an accident or malfunction of a different type than was previously evaluated in the Safety Analysis Report.

This Safety Evaluation addresses a Temporary Modification to install a fire hose to cross-connect the CD and BC systems at the Unit 1 generator leads cooler. The alternate source of cooling water for the Unit 1 generator leads cooler (1-GM-E-3) will provide operational flexibility for addressing the impact of hot weather to allow for improved main generator operation. Permanent connections to the subject systems will be installed per DCP 99-133 prior to this Temporary Modification. If this change is determined to be desirable from a long-term operational standpoint, DCP 99-134 will be implemented to install piping in place of the fire hose. The operation of the equipment and systems important to nuclear safety are not affected by this activity. Turbine and reactor control and protection circuitry is not affected in any way.

3. Condition does not reduce the margin of safety of any part of the Technical Specifications as described in the bases section.

Technical Specification margin as it relates to the main turbine is concerned with isolation of steam flow from the turbine in the event of a turbine trip or overspeed condition. Neither of these is affected by the installation of a fire hose to cross-connect the CD and BC systems at the Unit 1 generator leads cooler. Thus, the changes of the subject Temporary Modification, Operating Procedures, Abnormal Procedures, and Annunciator

Responses do not reduce the margin of safety of any part of the Technical Specifications as described in the Basis section.

4. Condition does not have the potential to alter any of the environmental parameters identified in the Environmental Zone Description.

This change does not have the possibility of altering any of the environmental parameters identified in the Environmental Zone Description (EZD). The worst case environmental impact of this activity is failure of the hose connecting the CD and BC systems at the Unit 1 generator leads cooler. In that case, the only parameter capable of being affected is "submergence" — Revision 19 of EZD for Zone TURB lists this parameter as "N/A." The design basis line break in the Turbine Building is capable of being contained within the Amertap pit before it is isolated. The failure of the fire hose installed per this Temporary Modification results in a flow path from the chilled water system to the Unit 1 Turbine Building. However, the impact of this postulated scenario is bounded by the existing analysis for the applicable EZD zone. Revisions have been made to the subject Annuciator Response Procedures to guide operations to react appropriately in the event of the postulated hose failure. A hose failure would be capable of being contained within the Amertap pit as discussed above. Therefore, this condition will not have the potential to adversely alter any plant equipment due to a hose failure.

99-SE-PROC-10

Description
2-MOP-6.71, 2J 4160-VOLT EMERGENCY BUS.
Added steps to the MOP to defeat operation of Directional Overcurrent relay on 1-EE-BKR-15H11 to prevent breaker from tripping open when the 1H EDG is supplying the 2J emergency bus.

Summary
During a review of MOP 6.70, "1-EE-SW-1H, 4160-Volt Emergency Bus," a possible problem was identified by Control Operations regarding the Directional Overcurrent relay associated with the normal supply breaker to the 2J bus (25J11) breaker. When the 2J Emergency Diesel Generator is lined up to provide power to the 1H Emergency bus the 0.2 second time delay of the Directional Overcurrent relay might not be long enough to prevent tripping open of the 25J11 breaker during normal starting loads associated with 1H Emergency bus. The tripping open of the 25J11 breaker would render this configuration impractical. Therefore, the Directional Overcurrent relay must be defeated during the performance of the MOP to enhance overall emergency power supply reliability. This safety evaluation documents the acceptability of duplicating this change for 2-MOP-6.71, Rev. 17, which addresses reenergizing the 2J emergency bus from the 1H EDG through the 15H11 breaker.

The Directional Overcurrent relay for the 15H11 breaker provides protection for an external fault in a situation where there is a fault upstream of the breaker and the 1H Emergency Diesel Generator is being paralleled to the grid. The Directional Overcurrent Relay is designed to trip open protecting the 1H emergency bus and its associated EDG during this type of fault. The Directional Overcurrent relay would also provide protection to the 1H emergency bus and its EDG if the EDG was feeding the 1H Emergency bus with the 1H bus normal feeder breaker (15F3) closed and the "C" RSST was connected. The relay is designed to trip open if a large load is started in this configuration which it is not designed to handle.

If a station blackout situation occurs with no power being supplied to the 2J emergency bus and it is necessary to supply the emergency bus with the 1H Emergency Diesel Generator, the Directional Overcurrent relay with its short (0.2 second) time delay might trip open due to the starting current of certain emergency bus loads. A normal emergency load such as a Charging pump is clearly within the design parameters of the EDGs. The starting currents of emergency loads are analyzed and well within the EDG's capability to handle. Therefore, the Directional Overcurrent relay in this configuration does not provide a useful function and may be defeated.

Prior to aligning the 1H EDG to supply the 2J emergency bus, the impact of this configuration on the Unit 1 electrical power supply is procedurally evaluated to ensure that Unit 1 will retain one train of emergency power. Defeat of the directional overcurrent relay will ensure that an emergency power source will be available for repowering one train of emergency equipment on Unit 2 to mitigate the consequences of analyzed accidents. Therefore, the probability of occurrence, or consequences of an accident or the malfunction of equipment important to safety will not be increased.

No new accident type or malfunction is created because all equipment will be operated within its normal design parameters and capabilities.

The margin of safety as described in the bases of the Technical Specifications has not been reduced.

Therefore, an unreviewed safety question does not exist for either unit.

99-SE-PROC-11

Description
1/2-GOP-4.20
New procedure to drain water from the hydrogen recombiner suction lines.

Summary
The proposed procedure will provide instructions for draining water from the hydrogen recombiner suction lines. The containment vacuum (CV) pump suction lines have two normally open automatic CV trip valves in series. The containment atmosphere cleanup system takes suction from these lines upstream of the CV trip valves through two additional automatic (HC) trip valves. The trip valves associated with the suction path from the containments to the hydrogen recombiner will be closed except for the outermost HC trip valve. This valve will be opened along with local vent and drain valves to support draining water from the subject piping. Since the drain valve between the HC containment isolation valves will be opened, the 4 hour action of the containment isolation TS will be entered. Additionally, when the drain valve on the HC suction piping between the HC trip valves is open, the local operator must remain in the vicinity of the drain valve and in communication with the control room. If a Phase A containment isolation signal actuates, then the drain valve must be closed. This action is considered substitution of a manual for an automatic action to provide dual containment isolation.

The activity does not affect precursors for the LBLOCA or MSLB accidents which could cause a Phase "A" isolation signal, nor will containment isolation capability on a Phase A isolation signal be adversely affected. An operator will be stationed at the local HC drain valve to ensure that line has dual isolation as designed. Thus, the consequences of a LBLOCA or MSLB are not increased. The change does not create the possibility for a different type of accident than previously analyzed, and no physical modifications are made to the existing systems. For these reasons, an unreviewed safety question does not exist. Since the proposed activity will increase the reliability of the hydrogen recombiners, the activity should be allowed.

99-SE-PROC-12

Description
2-PT-71.2Q, Rev. 16, OTO 1, 2-FW-P-3A, A Motor-Driven AFW Pump and Valve Test.
This Safety Evaluation applies to OTO procedure changes to install temporary pressure gages on the Auxiliary Feedwater Full Flow recirculation lines to enable taking pressure drop data. The pressure gages are installed in the recirculation lines during quarterly performance testing under 1 / 2-PT-71.2Q. Existing drain valves or test connections will be used to attach the gages. Installation and removal will be controlled by the referenced procedure and is considered a Procedure Controlled Temporary Modification per the requirements of VPAP-1403.

Summary
This Safety Evaluation is intended to review the impact of installing temporary instrumentation which can be used during a pump surveillance Periodic Test. The instrumentation will be pressure gages with a range suitable for the expected operating conditions for the Auxiliary Feedwater Pump full flow recirculation lines. The recirculation lines are normally isolated, but during the pump surveillance test are used to verify the pump is capable of meeting its head and flow requirements rather flowing to the steam generators. The original design of the full flow recirculation lines assumed that the lines would be used for up to 110% of design flow (head curve testing). However, this type testing is done very infrequently, and the normal quarterly surveillance and annual response time testing requires testing at only 90% for the motor driven pumps and 45% design flow for the turbine driven pumps. This low flow has caused problems, particularly for the turbine driven pump time response testing since the throttle valve is nearly impossible to set correctly for the desired 345 gpm value. The installation of the pressure gages will allow obtaining pressure drop data to be collected after each of the orifices in the motor driven AFW pump full flow recirculation lines and this information will be compared to the original orifice design calculations. From this comparison, orifices can be re-sized to provide flows closer to the design values which will allow the PT's to be performed with the throttle valves full open so that the test is repeatable over time. This will eliminate the uncertainty with the time response test of not being able to set the throttle valves to the precise point to achieve the desired initial flow.

The pressure gages are installed downstream of a drain valve or a test isolation valve that is a permanently installed in the full flow recirculation system. The gages will remain isolated until required for taking the pressure measurements in the procedure. The gages will be temporarily supported and are lightweight so as there would be no damage to safety related equipment if a seismic event were to occur while they were installed. The OTO change to the procedure will contain instructions to insure the gages are installed and removed under the procedure. The pump will be declared inoperable during performance of the test and will remain so during the time the gages are unisolated or the recirculation system is in service so there is no increased potential for external leakage.

The test measurements and the installation of the additional gages for these measurements will not affect the likelihood of a loss of feedwater. Thus, the consequences of this accident are not changed. These changes affect only the gauges to be installed. Any failure of the gauges or their connections will only result in minor leakage that will not significantly affect equipment in the motor-driven auxiliary feedwater pump house. Should such a failure occur, the operator stationed in the pump house to throttle the recirculation header isolation will be available to isolate the recirculation flow and terminate the event. Thus, adequate measures to mitigate leaks and gauge failures will be available during this activity. Moreover, the margin of safety for AFW pump operation is not effected. For these reasons, an unreviewed safety question does not exist, and this activity should be allowed.

This evolution of varying the pump flow while measuring recirculation orifice pressure drop does not constitute a special test since the recirculation system was designed for this purpose. Existing procedures are in place (PT-71.9) which allow full head curve testing of the AFW pumps which also allow for installation of instrumentation and measurements at various flows are also in place and portions of those tests could be run to obtain the data. However, the quarterly performance PT can be used with only minor change during normal pump testing to accomplish the same thing. This also reduces the required out of service time since the addition to the regular PT will take essentially no additional time to record the information.

99-SE-PROC-13

Description

ET No. SE-99-023, REV. 1, 1-TOP-6.1, and 2-TOP-6.1

In an effort to reduce the seasonal heat stress on various equipment in the EDG rooms, it is desired to lower the water stand-by temperatures for the Emergency Diesel Generator Engines during warm weather months, but maintain a temperature level that will meet the Tech Spec and UFSAR start requirements. This ET will discuss the acceptability of reducing these temperatures from the normal temperature range of 130-135° F for the jacket water, air cooler and lube oil during standby condition. The Temporary Modification will lift a lead to the jacket coolant low temperature alarm.

Summary

The two temperatures listed under Part A.7 will be monitored hourly until a new equilibrium temperature has been reached. After the temperatures have stabilized, and remain constant +/- 2 degF for 8 hours, the frequency can be moved to twice a shift during the normal Safeguards Operator rounds per 1 / 2-LOG-6F. 1-TOP-6.1 and 2-TOP-6.1 will be the formal tracking mechanism that will ensure the above temperature requirements are met per the Required Actions section of ET No. SE-99-023, REV. 1.

Loss of Offsite Power to the station, section 15.2.9, is the only applicable accident analyzed per the SAR. This activity will not affect the ability to mitigate a Loss of Offsite Power to the station, or any other accidents as described in the UFSAR. Reducing the standby temperatures and lifting the lead on the jacket coolant alarm circuit per the TM, will have no effect on the ability of the Emergency Diesel Generator to perform its design function. The temperature changes and the TM will not impact the Emergency Diesel Generator's ability to start and pick up the required emergency loads, within the required 10 second time period under all accident conditions.

The jacket coolant temperature reduction during the warm weather months will only delay the changing of the AMOT valve position. The AMOT valves determine if coolant passes through the radiators or recirculates though the engine until design control temperature is reached in the jacket coolant system and the air cooler system. This will not adversely impact the combustion process or damage any diesel engine components as long as ambient temperature is maintained above 70 degF. This will also have no impact on the required start time of the engine, or the ability for the Emergency Diesel Generator to accept the required emergency loads.

The resulting reduction in lube oil temperature, caused by the reduction in the heat added by the jacket coolant system will not adversely affect the lubrication properties of the lube oil or damage any diesel engine components, as long as, the temperature to the engine is maintained at or above 110 degF. Also, the lube oil viscosity will be low enough, so that proper drainage back to the sump can occur through the small clearances in the lower crankshaft bearings. If the lube oil viscosity is not maintained low enough, the oil could migrate to the upper crankshaft, which in turn potentially cause exhaust stack fires or worse, hydraulic lockup. Maintaining lube oil temperature to the engine at or above 110 degF will have no impact on the required start time of the engine, or the ability for the Emergency Diesel Generator to accept the required emergency loads.

The Emergency Diesel Generator Keepwarm System and Low Jacket Coolant Alarm are not addressed in the Technical Specifications. As long as the above temperature limits are maintained, the Emergency Diesel Generator reliability, and design function will be unaffected; therefore, an unreviewed safety question does not exist.

99-SE-PROC-14

Description

0-MCM-0450-01

Mechanical Maintenance Procedure 0-MCM-0450-01 is being revised to incorporate steps for back seating Pressurizer Spray valve, 2-RC-PCV-2455A, in accordance with the vendor technical manual. The spray valve will be backseated in the closed position with air removed from its actuator for the remainder of the cycle. Operation of the plant with the pressurizer spray valve and one Pressurizer PORV isolated is also being addressed.

Summary

The packing of Pressurizer spray valve 2-RC-PCV-2455A is leaking. Attempts to tighten the packing have failed to stop the leak. The valve will be back seated in the closed position in an attempt to stop the leakage. The cumulative affects of operating with one pressurizer spray valve and one Pressurizer PORV isolated is also being addressed.

The pressurizer spray valves automatically cycle to reduce pressurizer pressure based on a demand signal. The spray rate increases proportionally with increasing spray demand signal. Air will be isolated to 2-RC-PCV-2455A to ensure the valve will remain backseated and closed, therefore unable to respond to the spray demand signal. The remaining spray valve, 2-RC-PCV-2455B will still be able to respond as designed.

The UFSAR states the pressurizer spray system is designed to prevent the pressurizer pressure from reaching the setpoint to the PORVs during a step power reduction of 10% load. In addition, the UFSAR states the pressurizer control system enables the plant to handle a 5%/min ramp. Isolating one of the spray valves may adversely affect the plants ability to handle a 10% step load reduction or a 5%/min ramp without opening a PORV. Accident analyses for at power events rely on the pressurizer code safety valves for over pressure protection. No credit is taken for the operation of the pressurizer spray valves or PORVs. The case of a steam generator tube rupture, the accident analysis assumes pressurizer sprays or PORVs are available for depressurization. With one spray valve backseated and isolated, spray is still available via the remaining spray valve. In addition, the blocked PORV can still be manually cycled if necessary.

Since this activity does not increase the occurrence or probability of a malfunction or accident, no unreviewed safety question exists.

99-SE-PROC-15

Description

1-OP-21.6 Main Control and Relay Room Air Conditioning
2-OP-21.6 Main Control and Relay Room Air Conditioning
This procedure change allows an alternative method to fill the Chilled Water expansion tank if the normal flow path is unavailable. Specifically, a hose will be connected from the Domestic Water system to the applicable expansion tank drain valve.

Summary

This Safety Evaluation considers allowing a hose to be connected from the Domestic Water (DW) system to the Chilled Water (CD) system expansion tanks on the Main Control Room chillers for manual makeup. This would provide alternate means during periods when maintenance is being performed on the installed piping.

During the time this jumper will be in service, both control room chillers will remain fully operable. Makeup capability to the chillers expansion tanks will be via a red rubber hose attached to the DW system and the appropriate expansion tank drain valve. The hose will be run through the chiller room door and associated Technical Requirements Manual (TRM) actions will be implemented.

The DW system design conditions are < 70 psig and the temperature is ambient. The red rubber hose is rated for 195 psig at 130 degrees F. Therefore, the hose is acceptable for this application. The CD system will normally be isolated and the hose disconnected and isolated. During this time the affect on the control room habitability (due to control room delta-p, chiller CD system operability and flooding concerns) is negligible. The tank level is monitored by operator logs and leakage from the CD system is minimal. While the jumper is installed, an operator will be present to isolate it should a problem occur. The potential for flooding of the area is not increased since the jumper can be isolated quickly if required. In addition, there are two sump pumps installed in the chiller room that are rated at 100 gpm and have safety related power supplies.

The hose being installed by this procedure performs the same function as the installed piping that will be out of service for maintenance. The hose will be disconnected and isolated when not in use and the expansion level will be monitored to ensure makeups are performed as required. During a Design Basis Accident, the DW system would be lost since the lines are not seismically supported and the power supplies are not safety related. Therefore the impact of this jumper during an accident is negligible. For the reasons given above, an unreviewed safety question does not exist and this activity should be allowed.

99-SE-PROC-16

Description
0-ICM-SEC-MIS-001
Work Order #00402020-02
Deficiency Card IC 990129
VPAP-1403
Temporarily install microwave detector in Zone 7, West End Security Access Building, for evaluation.

Summary
Background

False/nuisance alarms at the West End Security Access Control Building require resolution. During periods of medium and heavy rain the entire microwave system covering the building remains in constant alarm status requiring compensatory measures. Additionally, we have experienced numerous false alarms from zone 7F of the microwave which covers the north wall of the building. These alarms annunciate during clear or rainy weather. I&C have been unable to reduce or stop these alarms without limiting coverage of the microwaves and as a result the subject detectors fail their operability test. A request for engineering assistance, REA#94-274, was issued for resolution. The vendor, Southwest Microwave inspected the installation and recommended a Model 300B detector. The Southwest Microwave 300B detector is a dual head design which offers better discrimination than the existing 375 unit. A Southwest Microwave Model 300B was issued to NAPS for evaluation of its use at the West End Security Building.

This Safety Evaluation covers the temporary installation of the Southwest Microwave Model 300B at the West End Security Access Control Building to evaluate its capability to operate properly without generating false/nuisance alarms. The subject detector will be installed in place of the existing Southwest Microwave Model 375 units utilizing existing wiring, power and security computer alarm input. The power requirements for the temporary microwave are less than the existing unit. The temporary microwave detector's output contacts will be connected to the Security computer input to signal alarms. These contacts are rated at 2 amperes at 28 VDC, which is more than adequate for this application.

Security Plan Implementing Procedure (SPIP) 15 – Inspections and Tests will be performed by Security to ensure operability when the new temporary equipment is installed. The same test will be used when the temporary equipment is removed and the old 375 detector is reinstalled.

Compensatory measures in accordance with Security Contingency Plan Implementing Procedure (SCPIP) 1 will be performed if the perimeter intrusion detection system fails or a false alarm is received.

The function of the station Security System is not associated with any Chapter 15 accident scenarios, neither as an accident precursor nor as accident mitigation. No new accident scenarios are created and accident probability is unaffected. The possibility of a different type accident previously evaluated in the Safety Analysis Report is not created by the installation of the new type of security microwave detector. The subject microwave detector is fed by a non-safety DC power supply powered from a non-safety electrical power source. The installation of the temporary microwave detector does not increase the probability of a Safety Related electrical emergency bus failure. The subject microwave detector is bounded by the DC power supply. The installation of the temporary microwave detector can not increase the consequences of a malfunction of a Safety Related electrical emergency bus failure.

The subject microwave detector will not create the possibility for a malfunction of equipment of a different type than previously evaluated in the Safety Analysis Report. The microwave detector is a non-safety component, powered from a non-safety electrical supply and does not have the potential to adversely affect a safety-related component.
The Security System operation is not listed in the Technical Specifications therefore the margin of safety of any part of the Technical Specifications as described in the bases section is not reduced by this activity.

The Security System does not interface or impact any system or component required for safe shutdown of the plant. Therefore, this temporary modification does not pose an unreviewed safety question, and the temporary installation of the new microwave detectors should be allowed.

99-SE-PROC-17

Description
2-PT-61.1B North Anna procedures for Installation and Setup of Instrumentation for the containment integrated leak rate test (type "A" test).
This safety evaluation supports the installation of temporary support instrumentation for the ILRT as a procedurally controlled temporary modification in 2 –PT-61.1B

Summary
Implementing this temporary modification will not increase the probability of occurrence of station accidents. The containment type "A" test will be performed during mode 5 shutdown operations, when a major loss of reactor coolant is unlikely. The reactor coolant system will be fully assembled with sufficient level maintained in the RCS Pressurizer throughout the type "A" test. The RCS loops will be filled and vented prior to test performance, and steam generator secondary side inventory will be adequate to provide natural circulation cooling, if required, due to a loss of forced core cooling via the RHR system.

The margin of safety as provided by the station Technical Specifications will not be altered or reduced by this temporary modification. No changes are required to the station Technical Specifications or Operating License. Technical Specifications will continue to be complied with as written.

The core cooling systems of Residual Heat Removal, Component Cooling, and Service Water will not be affected by this temporary modification. The RCS inventory makeup systems of Charging and Safety Injection will also not be affected.

The only interface between this temporary modification and station components occurs at the spare conductors of Unit 2 electrical penetrations 10E and 18E. Only station instrument cables exist within the junction boxes of the selected electrical penetrations. Design engineering will provide guidance during the installation of the temporary modification to ensure that the routing of instrumentation cabling is made in a manner that maintains separation of channels and power supplies.

This temporary modification does not create the possibility for an unidentified accident to occur. The modification should be transparent to station operations, and no adverse affects will occur to the vital core cooling and reactor coolant inventory makeup systems.

This temporary modification will not affect the ability of station operators to address malfunctions such as a loss of RHR, or loss of RCS inventory. Installation of this temporary modification will not increase the likely hood of such an incident occurring.

99-SE-PROC-18

Description

1-PT-61.1K, 2-PT-61.1K, 2-AP-17.11A

The mechanical blocking of 1/2-RH-FCV-1605/2605, 1/2-RH-HCV-1758/2758, 1/2-CH-HCV-1142/2142, and 1/2-CH-TV-1204A/2204A in the as-is position in support of 1/2-PT-61.1, Reactor Containment Integrated Leak Rate Test. The RHR heat exchanger cooling would be controlled by the CC discharge MOVs 100A/B and 200A/B. 2-AP-17.11A will replace AP-11 and AP-17 while performing the Type A test. The new AP will restore core cooling, in the event of a LOCA or a loss of RHR, by different means than AP-11 and AP-17, because the blocked valves will not be available for manipulation.

Summary

The purpose of this Safety Evaluation is to allow for the blocking of 1/2-RH-FCV-1605/2605 and 1/2-RH-HCV-1758/2758 in the as-is position and 1/2-CH-HCV-1142/2142 and 1/2-CH-TV-1204A/2204A in the full open position for the completion of the ILRT, 1/2-PT-61.1. The actual blocking of the valves will take place in 1/2-PT-61.1K. Since RHR heat exchanger bypass valves and the outlet valves are being mechanically blocked, the decay heat removal rate will be controlled using the CC discharge MOVs 100A/B and 200A/B to maintain the RCS temperature below 350°F. Maintaining the RCS below 350°F is the requirement of the RHR inoperability LCO upon blocking the valves. T.S. 3.4.1.3 requires that the corrective actions be taken immediately to return the loops to operable status and be in Cold Shutdown within 20 hours. However, the test will take approximately 48 hours and be run with the Unit in Cold Shutdown; the plant status and the procedural control meet the intent of the time immediacy of the T.S. action. This action will be entered upon blocking the valves. The blocking of 1/2-CH-HCV-1142/2142 and 1/2-CH-TV-1204A/2204A in the full open position will render these valves incapable of isolation for a Phase A signal, however, 1/2-CH-TV-1204B/2204B will be available for isolation. Since the test will be run in Mode 5 only, there is no T.S. requirement for containment isolation. However, since the 'B' trip valves will be operable, containment isolation is available for defense in depth. Therefore, there is no basis why these valves should not be mechanically blocked for the duration of the ILRT, 1/2-PT-61.1.

The reason the valves need to be blocked is that instrument air will be isolated from containment. Therefore, the valves would be in their failure modes, fail closed for all except the RH-HCV-1758/2758 valves, which fail open. Though the RHR system could still provide cooling in this manner, the cooling rate would increase due to the lack of RHR HX bypass flow. One of the goals during the test is to maintain the RCS as static as possible, therefore the valves will be blocked as/is or full open (where applicable) to maintain RCS temperature as stable as possible. The RHR system flow, normally around 3000 gpm, could be controlled manually, but this is not possible since containment will be pressed up for the test and no personnel will be in containment. The test will be run after the core has been refueled, towards the end of the outage when decay heat is near its lowest. The basis for no switchyard work is because the CC MOVs 100A/B are powered by 1-EP-MCC-1A1-1 and 1-EP-MCC-1B1-2, respectively. If power was lost to these MOVs, then RCS temperature control could be inhibited.

The new procedure, 2-AP-17.11A, has been created to maintain core cooling in the event of a LOCA or a loss of RHR during the Type A test. The procedures normally used for a LOCA or a loss of RHR, AP-17 and AP-11 respectively require manipulation of the RHR heat exchanger outlet and bypass valves. These valves will be mechanically blocked and not available for manipulation. Therefore, the new AP will maintain core cooling by other means, circumventing the blocked valves. The steps in the new AP do not involve any actions that do not exist in any SNSOC approved procedure. Therefore, 2-AP-17.11A does not present any unreviewed safety questions.

The proposed changes have been reviewed against the criteria of 10 CFR 50.59. This review concluded that these changes raise no unreviewed safety questions. The basis for this determination is as follows:

1) The probability of occurrence or the consequences of an accident or malfunction of equipment important to the safety previously evaluated are not increased. The decay heat removal rate will still be controlled in accordance with design and T.S. limitations.

2) The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created. This is only to clarify that the proposed on-line maintenance can occur on the RHR system.

3) The margin of safety as defined in the technical specifications is not reduced.

99-SE-PROC-19

Description
Temporary Modification
0-OP-51.5, Rev. 8, {P1}
Temporary Modification
0-OP-51.5, Rev. 8, {P1}

Summary
This Safety Evaluation considers allowing a hose to be connected from the Domestic Water (DW) system to the Chilled Water (CD) system surge tank in order to makeup to the tank when the normal condensate fill header is unavailable. This would provide alternate means to fill the tank during periods when maintenance is being performed.

The CD system will normally be isolated. The tank level is monitored by operator logs and leakage from the CD system is minimal. While the jumper is in service to fill the surge tank, an operator will be present to isolate it should a problem occur. Because the normal condensate fill header will be tagged out for the duration of the outage, the jumper will remain in place for that period of time. When the condensate fill header is returned to service the jumper will be removed by the procedure and independently verified. While the jumper is installed, the hose hookup will be placed into the "Procedurally Controlled Temporary Modification" log.

DESIGN REVIEW

The Chilled Water System is described in Section 9.2.2 of the UFSAR. The system provides cooling water to the Containment Air Recirculation Coolers, the Gas Stripper Chillers, various sample coolers, and the RWST Coolers (to perform initial cooling following a Refueling Outage). UFSAR Section 9.2.2.1.2 states that the Chilled Water system does not supply water to equipment that is required to operate to maintain the plant in a safe condition.

The Chilled Water System Surge Tank is not specifically described in UFSAR. The applicable section does note that makeup water to the system can be provided by the Condensate Makeup Header.

The Chilled Water Surge Tank is located in the Northwest corner of the Unit 2 Turbine Building basement. The tank provides a surge volume for the system and a means to accommodate volume makeup to the system due to any system leakage. The tank is connected to the system at the Mechanical Chiller Circulating Pump mini-recirculation common return header (low pressure portion of the system - less than 30 psig). Pump discharge pressure is normally less than 150 psig. The Chilled Water system temperature is less than 100 degrees F.

The normal means of makeup to the Chilled Water Surge Tank is from the Condensate Header using an installed hard piped line and fill valve. When tank level is low, the tank is normally filled by operating the fill valve from the Condensate Makeup Header. This procedure will use a jumper to allow a hose to be connected from the Domestic Water system to fill the surge tank. The fill valve is then closed when the desired level is reached. The tank is equipped with a level switch and gauge assembly which provides local indication of tank level. The level switch provides a level alarm annunciator in the Main Control Room on high or low tank level.

The Domestic Water System is described in Section 9.2.3.1 of the UFSAR. The DW system design conditions are < 70 psig and the temperature is ambient. The red rubber hose is rated for 195 psig at 130 degrees F. Therefore, the hose is acceptable for this application.

CONCLUSION

The potential for flooding of the area is not increased since the jumper can be isolated quickly if required. This jumper does not alter or affect the function nor operation of the tank. During a Design Basis Accident, the DW system would be lost since the lines are not seismically supported and the power supplies are not safety related. Therefore, the impact of this jumper during an accident is negligible. For the reasons given above, an unreviewed safety question does not exist and this activity should be allowed.

The system does not provide any safety function required for safe shutdown or accident mitigation. The jumper does not alter the system function or performance. Therefore the change does not increase the probability of an accident or malfunction previously evaluated in the UFSAR. Likewise, the change does not increase the consequences of an accident or malfunction previously evaluated. The change involves a simple point to point mechanical jumper which will only be placed in service for attended makeups; therefore, no new accidents or malfunctions are created. The Chilled Water and Domestic Water Systems are not required by any Technical Specification. Thus, no Technical Specification requirements are altered by the change, nor are new requirements necessitated. For these reasons, an Unreviewed Safety Question is not created, and the Temporary Modification should be allowed.

99-SE-PROC-20

Description
2-OP-26.125
2-MOP-26.125 is a new procedure created to align 2-EP-MCC-2A1-1 for maintenance and to return 2-EP-MCC-2A1-1 to service following maintenance. The procedure also addresses installation of a jumper from 2-EP-MCC-2C1-1 to power Reactor Containment lighting panel 2RC4.

Summary
2-MOP-26.125 is a new procedure created to align 2-EP-MCC-2A1-1 for maintenance and to return 2-EP-MCC-2A1-1 to service following maintenance. The procedure also addresses installation of a jumper from 2-EP-MCC-2C1-1 to power Reactor Containment lighting panel 2RC4. No permanent modifications are being made and there is no effect on the environment as a result of this procedure implementation.

2-EP-MCC-2A1-1 is a non-safety related, station service 480 volt MCC. The procedure is written such that it may be performed in any mode. Initial conditions of the MOP ensure plant conditions can support removal of 2-EP-MCC-2A1-1 for maintenance. Procedure controls are in place to ensure all Tech Spec / TRM requirements are satisfied. The impact of the loss of specific loads is addressed below.

RHR is a Tech Spec required system in Modes 1 through 6. The specifications require operability of one or more trains of RHR depending on the Mode or condition of applicability. Although there will be no power to 2-CC-MOV-200A, the 1A RHR Heat Exchanger Outlet Header Isolation valve, the valve can still be operated manually, therefore both trains of RHR will remain operable.

Although power is removed to 2-MS-NRV-201A, the A S/G non return valve, the valve will still automatically close on reverse flow to prevent blowdown of all steam generators in the event of a fault of the A S/G or Main Steam pipe break upstream of 2-MS-NRV-201A. Thus, it is still capable of performing its safety function as discussed in the accident analyses presented in the UFSAR.

Procedure controls are in place to ensure the requirements of Tech Spec 3.9.9 addressing the operability of the containment purge and exhaust system are satisfied. However, should the containment purge and exhaust lines fail to be isolated during a Fuel Handling Accident inside Containment (Chapter 15.4.7), UFSAR section 15.4.7.2.4 states the resulting dose received at the site area boundary is within the limits of 10CFR-100.

Therefore, the procedure does not increase the probability of occurrence or the consequences of an accident or malfunction previously addressed in the UFSAR and no new accident or malfunction is created.

99-SE-PROC-21

Description
1-OP-50.2 Rev. 11 Operation of the Bearing Cooling Water System
An additional section is being added to this procedure for controlling a temporary modification which is composed of a mechanical jumper between the Fire Protection System and the Bearing Cooling Water Tower basin. A hose will be installed from Hose House "L" into the tower basin to allow makeup to the basin during times when no Bearing Cooling Water makeup pump is available.

Summary
1-OP-50.2 is an approved operating procedure for the Bearing Cooling Water System. Included in this procedure is the operation of the Bearing Cooling Water Makeup pumps to provide water to the tower basin. Evaporation from the tower requires constant makeup capability.

An additional section is being added to this procedure for controlling a temporary modification which is composed of a mechanical jumper between the Fire Protection System and the Bearing Cooling Water Tower basin. A hose will be installed from Hose House "L" into the tower basin to allow makeup to the basin during times when no Bearing Cooling Water makeup pump is available.

The safety classification of the Bearing Cooling Water (BC) system is non-safety related and the Fire Protection (FP) system NSQ. The FP system does have regulatory requirements associated with Technical Requirements Manual (TRM) Section 7.1.8, Fire Suppression System Impairments.

Removing water from the FP system via a 1.5" hose will not jeopardize the FP system integrity. The volume of water supplied to BC will reduce the water volume available to mitigate a fire; however, sufficient capacity exists to ensure the FP system performs its design function. In addition, BC makeup could be terminated during a fire. One fire pump, preferably 1-FP-P-1, will be started and run for the duration of the makeup. In the event that a fire should occur during this time, the remainder of the FP system is available and the makeup can be stopped to allow the in use fire pump to be available for fire suppression. In the event of a rupture in the hose, FP system capacity/pressure is maintained by a pressure maintenance system consisting of a jockey pump, a hydropneumatic tank with an air compressor and accessories. In addition if system pressure drops below preset values (90 psig for the motor driven fire pump and 52 psig for the diesel driven fire pump) then the fire pumps will automatically start. The rupture would eventually be discovered and could easily be isolated by closing valve 1-FP-236 or 1-FP-237. The fire protection system will remain operable.

The Supervisor of Safety and Loss Prevention has been contacted concerning this proposed activity. He has stated that using Hose House L as a makeup source of water to BC will not render that hose house inoperable, provided the hoses normally present in the hose house are not used. 1-OP-50.2 specifically requires that Hose House L be declared inoperable if the normally supplied hose is used for the BC makeup.

The status controls of a Procedurally Controlled Temporary Modification ensure that the hose house status is documented and communicated with the on-duty shift. If the TM is installed for more than one shift, the TM status is required to be documented in the Temporary Modification Log and in the Equipment Status System. Prior to assuming the watch, the Scene Leader reviews all Abnormal Status entries that affect Fire Protection. In addition, the remainder of the shift team is required to review Abnormal Status entries that might affect their watch station, this includes the Shift Supervisor and Unit Supervisors.

During this evolution, the BC and FP systems will be operated within their respective design capabilities. Performance of this procedurally controlled evolution will neither increase the probability that a previously analyzed accident or malfunction will occur, nor will it increase the possibility that a unique accident or malfunction will happen. The FP System, as described in the TRM, is not adversely affected. The applicable TRM LCO will be entered, if necessary.

An Unreviewed Safety Question is therefore not created by this Temporary Modification.

99-SE-PROC-22

Description
1-OP-10.2, Rev. 5, P1
A temporary modification is to be added to procedure 1-OP-10.2 as an alternate method for loop stop valve leakage recovery if the PDTT pump or the Gas Stripper discharge pump fails. This procedure will allow the installation of a hose, an air pump and a check valve between the suction of the PDTT pump and a LMC valve at penetration 104 on a line going to the RP pumps.

Summary
A temporary modification is to be added to procedure 1-OP-10.2 as an alternate method for loop stop valve leakage recovery if the PDTT pump or the Gas Stripper discharge pump fails. This procedure will allow the installation of a hose, an air pump and a check valve between the suction of the PDTT pump and a LMC valve at penetration 104 on a line going to the RP pumps.

The temporary modification will be leak checked after installation. Failure of the hose would result in water from the PDTT being pumped on to the containment floor until the leak is terminated. The Loop Stop Valves will be closed during the period that this temporary modification is installed which will limit any leakage to the PDTT. Water from the RP system will be preserved by the check valve that is to be installed near where this temporary modification ties into the RP system. Failure of the check valve will cause a reduction in Refueling Cavity and Spent Fuel Pit level with the Spent Fuel Pit low level alarm. The failure can be quickly terminated by closing 2-RP-10. Configuration of the jumper prevents it from being able to cause a Loss of RHR condition due to air entrainment. Therefore, implementation of this TM will not increase the probability of occurrence of an accident or malfunction of equipment previously analyzed.

Failure of the TM will not affect equipment and systems used to respond to the considered accidents. The ability to provide makeup to the RCS and cavity are not reduced by implementing this TM. Implementation of this TM has no effect on systems or equipment required to provide backup cooling to the reactor vessel or spent fuel pit. Therefore, implementation of this TM will not increase the consequences of an accident or malfunction of equipment previously analyzed.

Configuration of the jumper prevents it from being able to create a Loss of RHR condition due to air entrainment of RHR pumps or loss of vessel level. Implementation of this jumper has no effect on equipment required for the stable maintenance of reactor vessel or spent fuel pit level and temperature. Therefore, implementation of this TM will not create the possibility of an accident or malfunction of equipment not previously analyzed.

Implementation of this jumper has no effect on the basis section of the Tech Specs. Therefore, the margin of safety as defined in the bases to the Tech Specs is not reduced.

For these reasons, an Unreviewed Safety Question does not exist.

99-SE-PROC-23

Description
2-PT-61.1, Reactor Containment Integrated Leak Rate Test
This safety evaluation supports the installation of a procedurally controlled temporary modification in 2 – PT-61.1. This temporary modification consists of installation and removal of an air hose from the containment instrument air header at 2-IA-251, to the instrument air connection for 2-CV-TV-200 at 2-IA-105. 2-CV-TV-200 is the containment hogger suction line inside isolation valve.

Summary
Implementing this temporary modification will not increase the probability of occurrence of station accidents. The containment type "A" test will be performed during mode 5, cold shutdown operations, when a major loss of reactor coolant is unlikely. The reactor coolant system will be fully assembled with sufficient level maintained in the RCS Pressurizer throughout the type "A" test. The RCS loops will be filled and vented prior to test performance, and steam generator secondary side inventory will be adequate to provide natural circulation cooling, if required, due to a loss of forced core cooling via the RHR system.

The margin of safety as provided by the station Technical Specifications will not be altered or reduced by this temporary modification. No changes are required to the station Technical Specifications or Operating License. Technical Specifications will continue to be complied with as written.

The core cooling systems of Residual Heat Removal, Component Cooling, and Service Water will not be affected by this temporary modification. If a loss of instrument air pressure should occur due to a failure of this temporary air hose, Control Room personnel will perform 2-AP-28 "Loss of Instrument Air". This procedure will direct the operators to close the containment instrument air trip valves, which will effectively isolate the faulted air hose, and allow instrument air pressure to recover. The RCS inventory makeup systems of Charging and Safety Injection will also not be affected.

This temporary modification will consist of a temporary air hose of approximately 20 ft long, installed between containment instrument air header vent valve 2-IA-251 and the instrument air tubing to 2-CV-TV-200 at 2-IA-105. This air hose will have a diameter of less than 1 inch and will have a pressure rating of at a minimum of 150 psig. Stainless steel or brass fittings will be used to attach this temporary hose to station components to reduce the possibility of failure. The hose will also be restrained to prevent whip in the unlikely event of hose failure.

This temporary air hose will not affect the performance of the containment integrated leak rate test, nor will it affect any safety related system performance. This temporary modification does not create the possibility for an unidentified accident to occur.

This temporary modification will not affect the ability of station operators to address malfunctions such as a loss of RHR, or loss of RCS inventory. Installation of this temporary modification will not increase the likely hood of such an incident occurring.

This temporary modification should be allowed in order to minimize the amount of time required to depressurize containment following the completion of a containment integrated leak rate test. Use of this pathway will reduce the amount of time that the containment is not accessible, and therefore optimizes reactor safety.

99-SE-PROC-24

Description

2-PT-210.19 Rev 9 "Inservice Inspection SI Accumulator Discharge Check Valves Full Open Test"
2-PT-210.19 is being modified to perform check valve testing on the accumulator discharge check valves. The following instrument loops will be removed from service to support installation of temporary test equipment: 2-SI-P-2921, 2-SI-P-2925, 2-SI-P-2929, 2-SI-L-2920, 2-SI-L-2924, 2-SI-L-2928, and 2-RS-P-256A. This test will also require the installation of temporary test instruments to 2-RS-PT-256A. This process will involve the removal of the cover for 2-RS-PT-256A, an EQ pressure transmitter.

Summary

Note that concerns raised due to performing this test with fuel in the vessel were previously evaluated under 95-SE-PROC-31. The proposed changes to the test do not affect the previous evaluations regarding potential for a dilution event, cracking of primary piping or introduction of a nitrogen bubble into the refueling cavity.

The activity revises the test method and instrumentation requirements to verify the accumulator discharge check valves actuate to the full open position. The subject valves and accumulators are not required to mitigate accidents in Mode 6. The proposed revisions affect the configuration of the associated instrumentation only, and there is no impact on precursors for evaluated accidents. The configuration of the permanent instrumentation will be restored normal at the conclusion of the testing. Therefore, the possibility of a malfunction different than previously evaluated is not created.
This test will not affect any equipment important to safety. All of the affected equipment is used for indication and/or alarm purposes only and is not required while the unit is in mode 6. The installation of temporary instrumentation will not cause the possibility for a malfunction of equipment of a different type than previously evaluated in the SAR. Therefore, an unreviewed safety question does not exist and the test should be allowed.

99-SE-PROC-25

Description

2-OP-8.2.3 (Rev. 0-OTO-1) "Deborating Demineralizer Operation"
2-OP-8.2.3 is being revised to control the use of a Deborating Demineralizer, 2-CH-I-3A or 3B, as an anion bed to reduce the U2 RCS sulfate concentration.

Summary

The CVCS must be maintained capable of reducing the concentration of ionic isotopes in the RCS as required in the design basis. Normally, this is accomplished by passing letdown flow through the mixed bed demineralizers; however, it is not desired to use this lineup at this time.

2-CH-I-3A and 3B, Deborating Demineralizers, will be placed in service for RCS purification saturated with boron. The deborating demineralizers will act as an anion demineralizer to remove sulfates.

The UFSAR discusses operation of the mixed bed and deborating demineralizers; however, it does not address operation of the deborating demineralizer in this manner. The demineralizers are provided for use near the end of the core cycle, but they can be used at any time using a hydroxyl-based ion exchange resin. The deborating demineralizer will not perform its normal design function while used for sulfate removal. Prior to reaching the end of the upcoming cycle, the deborating demineralizer will be returned to its normal condition.

The procedure adequately controls the evolution. The greatest concern with this evolution is the potential to dilute the RCS if the resin removes boron from the letdown stream and passes this diluted water back into the RCS. The procedure prevents this from happening in steps 5.1.19 for 3A and 5.3.19 for 3B, which directs the procedure performer to contact Chemistry to determine if the resin bed needs to be flushed to borate the bed. If Chemistry requires a flush (which will be the case the first time the bed is flowed), the bed will be flushed to the stripper until such time that boron concentration in the influent and effluent of the bed is equalized. This will prevent dilution by adequately borating the bed and flushing the piping with borated RCS water.

The operation and design of the CVCS is not altered in such a way as to affect the probability or consequences of any accident. The CVCS is being altered as described in the UFSAR to enhance the RCS cleanup effort during startup activities. Accident response is unaffected. Therefore, no unreviewed safety question exists.

SAFETY EVALUATION LOG
TEMPORARY MODIFICATIONS
1999

S.E. #	Unit	Document	System	Description	SNSOC Date
99-SE-TM-01	1	N1-1673	DA, LW	Install flange in place of the bonnet of 1-DA-28 isolation valve in discharge line of 1-DA-P-3B to allow temporary hose & pump powered from SA to remove water from auxiliary building sump prior to sludge removal	1-26-99
99-SE-TM-02	1	N1-1674	BC	Provides cabling from the alternate supply breaker to the load side (or an electrically equivalent point) of 1-BC-F-1B to provide power to 1-BC-F-1B due to failed breaker	3-11-99
99-SE-TM-03	1,2	N2-1126	CD	Substitutes temporary RTD on mechanical chiller bearing, which currently has a defective RTD installed.	3-20-99
99-SE-TM-04	1	N1-1675 1-MOP-31.31A & B	FW	Installation of a gag screw on 1-SV-RV-111B to prevent leakage through the valve	3-24-99
99-SE-TM-05	2	N2-1127	VMS	Jumpers out the active accelerometer 2-VMS-YE-200C-1, which is behaving erratically, to allow the signal from the existing spare accelerometer, 2-VMS-YE-200C-2, to provide input for indication of 2-RC-SV-2551C.	4-15-99
99-SE-TM-06	1	N1-1676	EG	Removes the cable from cell #1 of the 1H EDG battery due to high resistance readings & lands this lead on cell #2. The entire battery will be replaced when parts are available.	5-07-99
99-SE-TM-07	2	N2-1128 ICP-TSC-1-MUX-01		Replaces buffer amplifier cards with thermocouple amplifier cards in FW temperature channels that input to the PCS & ERFCS (02-MUX-21, Slots 21, 22, & 23).	5-12-99
99-SE-TM-08	1	N1-1677	MS	Removes circuit cards PC1, PC2, & PC3 from 1-EI-CB-30 to return the reheater power supply output to normal levels & allow removal of the manual override on the reheat FCVs	8-18-99
99-SE-TM-09	1,2	N1-1678	BC	Installs a temporary chemical addition system to the BC system, to be used to add biocide H-900 in tablet form to the system	10-12-99
99-SE-TM-10	2	TM N2-1129 2-AR-T-C2 VPAP-1403		Lifts leads from 2-GM-LS-210-1 to clear a locked-in defoaming tank level alarm (T-C2)	11-18-99

99-SE-TM-01

Description
Temporary Modification (TM) N1-1673
WR Tag #-055049
Install a flange with a 2-inch cam lock male fitting replacing the bonnet of 1-DA-28 isolation valve in the discharge line of 1-DA-P-3B. A temporary hose and pump will then be used to remove water from the Auxiliary Building Sump, taking level down from approximately four feet to approximately one foot, and pumping the water to its normal destination, the High Level Liquid Waste Tanks, via the fitting into 1-DA-28.

Summary
Reduction of the amount of water in the Auxiliary Building Sump is desired before removal of the sludge in the bottom of the sump is vacuumed out and prepared for shipment offsite. Reduction of the water before sludge removal is desired rather than afterward, to minimize radwaste.

Therefore, a flange with a 2-inch cam lock male fitting will be installed in place of the bonnet of 1-DA-28 isolation valve in the discharge line of 1-DA-P-3B. A temporary hose and pump powered from Service Air will then be used to remove water from the Auxiliary Building Sump, taking level down from approximately four feet to approximately one foot, and pumping the water to its normal destination, the High Level Liquid Waste Tanks, as described in UFSAR 9.3.3, via the fitting into 1-DA-28.

The fitting connection will be functionally tested by the initial flow through the temporary flowpath. If there is leakage from the connection or the temporary flowpath not directed back into the sump, the temporary pump will be secured to minimize potential radiological contamination. Valve 1-DA-28 will also be post maintenance tested under the work order process after it has been put back together.

The Auxiliary Building Sump Pumps and the associated DA system are not safety related, nor are they required by Tech Specs or described in the Tech Spec Bases.

All existing instrumentation, controls, and flowpaths will be unaffected. The existing sump pumps 1-DA-P-3A and 3B will still be in service ready to pump the sump in auto if sump inleakage should increase above the ability of the temporary pump. The flange connected to the bonnet of 1-DA-28 does not affect the flowpath of 1-DA-P-3B. The valve is a Grinnell valve. The diaphragm "internal" will come off with the bonnet, thus ensuring the open flowpath for 1-DA-P-3B if it starts. Check valve 1-DA-27 upstream of 1-DA-28 will prevent temporary pump flow from short cycling back into the sump.

Just as in other dewatering activities, it is not expected that levels of radiation or airborne radioactivity will increase. The activity does take place in the RCA and the usual radiological controls and practices will be in place.

Dewatering activities in the Aux Building neither increase the probability of, nor increase the consequences of, nor create the possibility of accidents different than, any Chapter 15 accidents. No new flowpath to the environment is created nor is any existing flowpath adversely impacted by this activity.

99-SE-TM-02

Description

Temporary Modification #1674
Engineering Transmittal EE-99-003 Rev.0
A temporary modification (TM) will be installed to provide power to 1-BC-F-1B. The power will be provided from another breaker installed in the same MCC as the normal breaker for 1-BC-F-1B (1-EP-BKR-1G2-1-B1). Cabling will be run from the alternate supply breaker (1-EP-BKR-1G2-1-F1 – 1-BC-P-3A) load side to the load side (or an electrically equivalent point) of 1-BC-F-1B.

Summary

The supply breaker for 1-BC-F-1B would not manually open when the control handle was operated. Replacement of the failed breaker is not desired until the next bus outage due to personnel safety concerns. The purpose of the TM associated with this safety evaluation is to install cabling from an alternate supply breaker in the same MCC to the load side of 1-BC-F-1B (or an electrically equivalent point).

The Bearing Cooling system is classified as Non Safety Related. There are no tests or experiments to be conducted.

The implementation of this modification will be transparent to the operation of 1-BC-F-1B. All switches and controls will be unaffected by this change. Bearing Cooling Makeup Pump 1-BC-P-3A will remain out of service for the duration of this modification. Remaining Unit 1 and Unit 2 makeup pumps will provide the necessary makeup.

The effects of installation and removal of the TM on UFSAR chapter 15 accidents were considered. The probability of occurrence for chapter 15 accidents is not increased. Supplying power to 1-BC-F-1B using an alternate supply breaker will not increase the consequences of the chapter 15 accidents. The TM does not create the possibility for a different type of accident. Installation of the TM ensures that the bearing cooling fan continues to provide cooling to the BC system.

The activity does not increase the probability of occurrence or the consequences of malfunctions previously identified in the UFSAR. The activity of installation of the TM restores a non-running bearing cooling fan to service and does not create the possibility for malfunctions different than previously evaluated in the UFSAR.

The margin of safety of the TS has not been reduced. Operation of the Bearing Cooling Fan and Makeup pump is not part of TS.

This TM does not require a change to the Operating License or Technical Specifications.

There are no environmental concern with this TM.

There are no experiments or tests to be performed and there is no unresolved safety question involving this temporary modification

99-SE-TM-03

Description

Temporary Modification N2-99-1126

This Temporary Modification will substitute a temporary RTD on the Mechanical Chiller bearing which presently has a defective RTD installed. Since this malfunctioning RTD is initiating a shutdown signal to the Chiller, another means of monitoring temperature is necessary in order to return the Chiller to service.

Summary

This temporary modification creates a means to insert the output from a temporary RTD installed on the Mechanical Chiller oil pump discharge piping into the point where the chiller bearing temperature RTD normally provides input to the shutdown circuit. The failed thrust assembly bearing temperature RTD (contained within the freon enclosure of the chiller) will have its leads lifted and taped and thus be out of service until the scheduled maintenance period for the chiller. The thrust assembly bearing is part of the shaft drive going to the freon pump impellers. Oil supplied to this bearing drains directly into the sump. The oil pump, which is located in the sump, pumps oil from the sump through an oil cooler, a filter and back to the thrust assembly bearing. The substitute RTD will be installed on the discharge of the oil pump between the pump and the oil cooler. The setpoint of the circuit is 205 degrees F and is preset. Adjustment of the setpoint could not be performed without further modifications to the protective circuits. Therefore, the setpoint will remain unchanged.

The temperature of the oil discharge piping where the substitute RTD will be installed is expected to be very similar to the existing RTD embedded in the thrust assembly bearing. The time delay is expected to be approx. 5 minutes from the time the temperature increases in the thrust assembly bearing to the time the oil discharge piping experiences the same temperature. The setpoint of 205 degrees F is indicative of bearing degradation. Degradation of the thrust assembly bearing is not expected to be so rapid that a 5 minute time delay would cause any additional significant damage to the bearing or the Mech. Chiller. The consequences of the bearing failure would be an increase in chilled water temperature, containment partial air pressure decreasing and containment temperature increasing. The CARF's would have to be swapped to service water.

Tech. Spec. 3.6.1.4 requires the containment partial internal air pressure to be maintained greater than or equal to 9.0 psia and Tech. Spec. 3.6.1.5 requires that containment average temperature be maintained greater than of equal to 86 degrees F and less than or equal to 120 degrees F.

The primary load on the Mechanical Chiller are the Containment Air Recirculation Cooling Coils, the gas stripper vent chillers, sampling coolers and the waste gas recombiner after cooler, as necessary.

Loss of chilled water to the CARF's is addressed by abnormal procedure AP-35.

99-SE-TM-04

Description

This Safety Evaluation is being performed in accordance with VPAP-1403, Section 6.4.9 for Temporary Modification N1-1675 and revisions to 1-MOP-31.31A and 31.31B

The "B" 1st Point Feedwater Heater Tube Side Relief Valve (1-SV-RV-111B) has been mechanically gagged to prevent leakage through the valve. The gag screw has been torqued to approximately 20 ft-lbs in accordance with Engineering instructions and the valve will no longer open to relieve pressure caused by thermal expansion. Installation of a gag has been determined to meet the requirements of a Temporary Modification.

Summary

This Temporary Modification installed a gag screw with a torque of 20 ft-lbs in thermal relief valve 1-SV-RV-111B to prevent feedwater from leaking through. Installation of the gag will prevent the valve from opening in the event that the tube side pressure in the 1B Feedwater Heater exceeds 1650 psig.

The purpose of this relief valve is to open at 1650 psig (tube design pressure) due to thermal expansion of the water if the tube side of the 1B feedwater heater was isolated during maintenance and heat was applied to the tubes. The worst case failure would be if the tubes were to be over pressurized. This would first cause plastic deformation of the tubes and then tube leakage due to a tube rupture. This would not pose a serious personnel hazard since water is virtually non-compressible under normal conditions. If the unit was started up after a feedwater tube rupture, it would cause a decrease in the efficiency of the heat exchanger, raise the water level on the shell side of the feedwater heater and tend to lower Tave in the Primary. However, all these effects would most likely be subtle and may not be readily observed by the Operators at the station.

With Blue tags installed to maintain the inlet and outlet valves of the heat exchanger open, it is unlikely that a thermal over pressurization condition could occur since the heater will remain connected to other portions of the feedwater system which still will have thermal over pressure protection available. Procedures are being developed to provide an alternate relief path if it becomes necessary to isolate the tube side inlet and outlet.

This Temporary Modification is acceptable for the following reasons:

1. This relief valve does not provide a safety function during normal plant operations and is for thermal relief only when the tube side of the feedwater heater is isolated.

2. The capacity of the relief valve is insignificant compared to the normal feedwater flow through the heat exchanger and is not intended to provide ASME Code Pressure protection for the system.

3. The administrative controls in place on the inlet and outlet valves should prevent any thermal over pressurization of the tubes until this valve can be replaced.

4. The consequences of this valve not opening to perform its intended function will only cause a minor decrease in plant efficiency and not create any plant safety issues.

Based on the above discussion, this temporary modification does not involve an unreviewed safety issue, and the activity should be allowed.

99-SE-TM-05

Description
Temporary Modification N2-1127
To jumper out the active accelerometer 2-VMS-YE-200C-1 which inputs a signal to the acoustic monitoring system to indicate the valve position of 2-RC-SV-2551C, the “C” Pressurizer Safety Valve, and to allow the existing spare accelerometer 2-VMS-YE-200C-2, a parallel signal, to provide the inputs for indication of the “C” Safety Valve.

Summary
This Safety Evaluation describes a Temporary Modification to the Unit 2 Pressurizer Safety Valve Monitoring System. Specifically, a spare parallel accelerometer used for valve position will be substituted for the current accelerometer due to erratic behavior of the existing channel.

The UFSAR documents the Acoustic Valve Monitoring System (VMS), and Technical Specification 3.3.3.6 and Reg. Guide 1.97 cite this monitor as an accident monitoring parameter. Acoustic VMS for the “C” Pressurizer Safety Valve (SV) is to provide reliable indication and alarms in the Main Control Room (MCR) whenever 2-RC-SV-2551C, the “C” Pressurizer SV is not fully closed. At this time the accelerometer that provides input to this monitoring system is behaving erratically and is bringing in spurious alarms in the MCR.

The existing spare accelerometer, 2-VMS-YE-200C-2 is an independent accelerometer that provides identical monitoring capabilities and is in the same proximity of the active accelerometer 2-VMS-YE-200C-1. This jumper will still provide the same outputs as the now active accelerometer to components such as the Plant Computer System (PCS) and the Annunciator 2-AR-C-D1. With regard to post-installation operability, the spare accelerometer was “ping” tested during the previous refueling outage; therefore, the sensing device is good. Continuity of the jumpered circuit will be ensured by verifying the circuit output is greater than zero (the current signal for Unit 2 “C” is greater than 2.0 percent and the current signals for the other five valves on Units 1 and 2 range from 0.2 to 0.6 percent). The Tech Spec required channel check will be performed before the jumpered circuit is declared operable.

Since no physical changes to the RCS system or it’s pressure boundary are required to be made, neither the design, operation, or margin of safety of the RCS System is to be affected. The Operating License nor Technical Specifications will not be adversely affected.

This jumper will not constitute an Unreviewed Safety Question since it will not increase the probability or the consequences of the accidents previously evaluated, nor will it increase the possibility of any new or unique accident precursors. The modification will not create the possibility of an accident of a different type either.

This temporary modification is utilizing a design feature that is described in the UFSAR by swapping which accelerometer will provide the input signal for plant monitoring of the “C” pressurizer SV. The channel will be swapped from the active accelerometer to the spare one for better indication.

99-SE-TM-06

Description

Temporary Modification # N1-1676

This temporary modification (TM) will isolate cell 1 of the 1H EDG Battery, 1-EG-B-1A, from the remaining 59 cells. The cable, that currently terminates at the positive post of cell 1, will be removed and reconnected to the positive post of cell 2.

Summary

This Safety Evaluation considers the safety significance of electrically disconnecting cell 1 from EDG 1H battery 1-EG-B-1A. This cell has exhibited high internal resistance and is being removed form service to ensure continued operability of 1-EG-B-1A. The entire 60 cell battery is planned to be replaced within the next year.

Corporate Electrical Engineering has analyzed the effects of removing cell 1 from this battery in Engineering Transmittal CEE-99-0010, Rev 0. While the overall battery float voltage and capacity will be reduced, this has been determined to be acceptable. By restricting in-service life of the battery to 10 years (December 2001), the aging factor can be adjusted from 1.25 to 1.125 to allow for adequate capacity design margin.

The cable normally connected to the positive post of cell 1 will be disconnected and reconnected to the positive post of cell 2. No additional cabling or termination hardware will be required. Connection resistance and overall battery voltage readings will be performed to ensure Technical Specifications are complied with following reconnection of the cable to cell 2. For these reasons, no new failure modes are introduced which do not already exist and the probability of occurrence and consequences of a malfunction or accident are not increased.

The failure of this TM will not affect the consequences of any Chapter 15 accidents based on the single failure criteria set forth in GDC 17 for emergency electrical distribution. The consequences of Loss of Offsite Power will be unaffected by this TM.

The margin of safety of the TS has not been reduced.

This TM does not require a change to the Operating License or Technical Specifications.

There are no environmental concerns with this TM.

There are no experiments or tests to be performed.

There are no unreviewed safety questions with this temporary modification.

99-SE-TM-07

Description
Temporary Modification - N2-1128
ICP-TSC-1-MUX-01
Replace buffer amplifier (BA) cards with thermocouple amplifier (TC) cards in the feedwater temperature channels that input to the PCS and ERFCS (02-Mux-21, Slots 21,22 and 23).

Summary
This activity does not involve any physical modification to the facility other than replacement of three cards with a type better suited for the application. The new thermocouple amplifier (TC) cards are manufactured by the same company as the buffer amplifier (BA) cards, and they are designed to fit the same slots. Bench testing has shown that the TC card has a more stable output than the BA card. The affected cards send a MFW temperature signal to the PCS and ERFCS only. The signal to the P-250 is not affected. Thus, the P-250 FW flow calorimetric is not affected by this activity.

Operations department calorimetric procedures currently "auctioneer" to the most conservative (or highest power) calorimetric indication. Currently the Unit 2 calorimetric using the PCS is the highest, thus it is used as the official indication. Since the accuracy of the calorimetric is in question due to the sensitivity of the BA cards to instrument drift, this condition may be requiring an unnecessary reduction in unit electrical output.

Failure of the activity is bounded by the evaluations performed for the FW flow calorimetric performed under 99-SE-MOD-01. Additionally, the P-250 indications of FW temperature or FW flow calorimetric will not be affected. Since Operations procedures utilize the most conservative indication, inaccuracies in the PCS generated FW flow calorimetric would only require a reduction in reactor power. Thus, there is no adverse affect on nuclear safety. No new accidents are created, and consequences of analyzed accidents are not affected. There is no reduction in the margin of safety or ability to mitigate accidents. For these reasons, an unreviewed safety question does not exist.

Since the activity will install amplifier cards in the circuit that are better suited for the application and result in a more accurate FW flow calorimetric, unnecessary reductions in unit electrical output may be eliminated. Therefore this activity should be allowed.

99-SE-TM-08

Description

Temporary Modification No. N-99-1677

The power supply to the reheater temperature control system is drifting low causing 1-MS-FCV-104A, B, C, & D to stroke closed 30 to 35%. The valves have been placed in manual override to maintain full open position. Troubleshooting by I&C technicians has found that the power supply is being excessively loaded by the electronic components associated with the automatic reheat temperature control system which is not normally used at North Anna. Removal of circuit cards PC1, PC2, and PC3 from 1-EI-CB-30 was found to return the power supply output to normal. This Temporary Modification is to allow continued operation with these cards removed.

Summary

Disabling the automatic reheater temperature control functions by removal of the PC1, PC2, and PC3 circuit cards from 1-EI-CB-30 has successfully eliminated the problem with the reheat system power supply and returned the power supply output to normal levels. This Temporary Modification, by restoring the power supply to normal output, will allow the manual override on the reheat FCVs to be cleared and allow them to function properly during a reactor trip without reliance on manual operator actions. The equipment affected by this Temporary Modification provides a control, not a protection function, and is not used at North Anna with the exception of the LP1 and LP2 turbine inlet temperature indicators.

The LP1 and P2 temperature indicators on the Reheat Valve Control Panel will be disabled as an effect of this modification. Alternate temperature indications are available and will be used to monitor heatup and cooldown rates by procedural control.

This Temporary Modification does not constitute an Unreviewed Safety Question for the following reasons:

1. Removing the cards from the system does not affect any automatic safety functions. The automatic temperature control aspect of the system has no safety function and is not currently in use at NAPS.

2. The reheat temperature control system is not Safety Related, has no Tech Spec requirements and is not described in the UFSAR. The probability or consequences of an accident are not affected.

3. All functions of the reheat control system functions other than the automatic temperature control function and the LP1 and LP2 inlet temperature indications on the Reheat Control Panel are unaffected. The operation of the RESET button as described in 1-E-0 is unchanged, as is normal closure of the FCVs in the event of a trip.

Therefore, this Temporary Modification does not involve an Unreviewed Safety Question and no changes are required to the Operating License.

99-SE-TM-09

Description

Temporary Modification 99-1678

Approval to install a temporary chemical addition system to the BC system. This temporary chemical addition system will be used to add Calgon Biocide, H-900 in the tablet form, to the BC system. H-900 is approved for and normally added to the Bearing Cooling (BC) system per VPAP-2201 via the Brominator (1-BC-TK-4). The Brominator had to be removed from service due to the recent oil-intrusion incident on the BC system (reference PI N-99-2478). Hence, it is being proposed to apply H-900 tablets at the top of the Bearing Cooling (BC) tower in the hot water distribution basin. The tablets will be placed in one or more plastic containers to facilitate solubility and to prohibit direct contact with the wood structure of the tower.

Summary

H-900, which is applied via the Brominator (1-BC-TK-4), is an approved biocide for the Bearing Cooling (BC) system per VPAP-2201. The Brominator has been removed from service due to the recent oil-intrusion incident on the BC system (reference PI N-99-2478). Hence, approval for the use of a temporary chemical addition system, which will be used to add Calgon Biocide (H-900) in the tablet form to the BC system, is being sought. It is being proposed to apply the H-900 tablets at the top of the Bearing Cooling (BC) tower in the hot water distribution basin. The tablets will be placed in one or more plastic containers to facilitate solubility and to prohibit direct contact with the wood structure of the tower. The oxidizing agents in H-900 promote wood decay when used in high concentrations over extended periods of time. This interim application will not produce any long-term effects.

To address the plant safety significance of the TM, the following accidents per the SAR were considered:

UFSAR Chapter 15.2.8 – Loss of Normal Feedwater: The loss of Bearing Cooling could result in a Main Feedwater pump trip or failure because the BC system provides pump seal-oil cooling.

It is unlikely that this interim use of H-900 in the tablet form in the Bearing Cooling tower would result in the loss of Bearing Cooling. This TM does not increase the probability of occurrence or increase the consequences of the Loss of Normal Feedwater accident. The plastic container used to deliver the H-900 is larger than the flow holes through which the BC water cascades down in the wood structure. Additionally, this modification does not impact any safety systems used to mitigate this accident, mainly Auxiliary Feedwater and its associated components.

UFSAR Chapter 6.4 Habitability Systems, for the Control Room to ensure that continuous occupancy of the area is possible for the events described in chapter 3 as well as all the postulated accidents discussed in chapter 15.

The use of H-900 in tablet form will not impact the Control Room habitability analysis. The H-900 biocide will be used on site in small quantities (10-20 lb.). Bulk storage will remain in warehouse #7, which is greater than the required .3 miles. H-900 in crystal form, is an approved chemical for use in the BC system. This chemical will be handled and administered by trained chemistry technicians.

Thus, no unreviewed safety question exists.

99-SE-TM-10

Description
Temporary Modification - N2-1129
2-AR-T-C2
VPAP-1403
Lift leads from 2-GM-LS-210-1 (Unit 2 Main Generator Defoaming Tank Level Switch - Exciter End) to clear a locked-in defoaming tank level alarm (T-C2).

Summary

The Defoaming Tank Level Alarm annunciator is locked-in on the Unit 2 Turbine Supervisory Panel in the MCR. The current alarm condition is due to the actuation of 2-GM-LS-210-1 (Unit 2 Main Generator Defoaming Tank Level Switch - Exciter End) from a previous high level condition resulting from a Seal Oil System perturbation. It is believed that the alarm is still present either due to the level not yet decreasing below the alarm reset point or due to a malfunctioning level switch. The annunciator is fed by 2-GM-LS-210-1 (Exciter end) & 2-GM-LS-210-2 (Turbine end). Actuation of either level switch will actuate the alarm, however, the annunciator does not have reflash capability. Since the annunciator does not have reflash capability, in the current condition, an actuation of 2-GM-LS-210-2 (Turbine end) will not alarm in the Control Room. It is desired to clear the locked in alarm from 2-GM-LS-210-1 to allow alarm capability for the remaining switch. This is desired for early warning of any subsequent defoaming tank high level conditions from the Turbine end. Without performing this temporary modification (TM), the existing alarm annunciator is useless as a warning tool for changing conditions. The TM will lift leads from 2-GM-LS-210-1 (Unit 2 Main Generator Defoaming Tank Level Switch - Exciter End) to the Hydrogen Control Panel to clear the locked-in defoaming tank level alarm. The temporary modification will remain in place until the level switch resets or completion of maintenance to repair/replace the switch.

The Generator Hydrogen Seal Oil system is only vaguely described in the UFSAR (Section 10.2). The description of the system does not include the defoaming tank or its alarms. The only reference to any alarms is a brief statement that the Hydrogen Control system has an alarm system to provide warning of improper system operation. Performance of the TM will restore the usefulness of the remaining defoaming tank level switch, and thus will restore alarm capability to provide warning of any subsequent operational problem involving the defoaming tank. Therefore, the TM will improve the current condition of the alarm system and enhance the ability to detect a malfunction in the Generator Seal Oil System.

There are no T.S. LCOs associated with the Generator Seal Oil System.

The Generator Seal Oil System provides an oil seal at the Turbine/Generator rotor interface with the Main Generator housing to prevent the escape of Hydrogen from the Main Generator. Hydrogen is used as a cooling medium for the Generator. A malfunction of the system could result in the loss of one or more of the Hydrogen oil seals which could cause a loss of Generator cooling and potentially cause flammable or explosive conditions around the seals. Such a failure of the system would be detected by various alarms and result in a shutdown of the Main Generator and Turbine. The Main Generator is designed to contain any explosion without damage to life or property external to the machine. Fire Protection at the machine provides suppression capability to prevent the spread of any fire. Catastrophic failure of the Main Generator will not adversely affect Safety Related systems or components needed to safely shutdown the unit. The TM will enhance the ability of the alarm system to detect a Seal Oil system malfunction so that actions may be taken to correct the condition prior to failure of the system.

For these reasons, an Unreviewed Safety Question is not created by the performance of the TM.