VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

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United States Nuclear Regulatory Commission
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Washington, D.C. 20555

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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 conducted at North Anna Power Station during 1992.

If you have any questions, please contact us.

Very truly yours,

M L Bowling

M. L. Bowling, Manager
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Enclosure

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JE47 1/1

1992 50.59 SAFETY EVALUATIONS REPORTABLE TO THE NRC

JCO's

92-SE-JCO-001
92-SE-JCO-002
92-SE-JCO-003
92-SE-JCO-004
92-SE-JCO-005
92-SE-JCO-006
92-SE-JCO-007

1992 SAFETY EVALUATION SUMMARY

SAFETY EVALUATION NUMBER 92-SE-JCO-001

DESCRIPTION

Justification for continued operation with a possible reduction in the relief capability of RHR relief valves.

SAFETY EVALUATION SUMMARY

Ensure that the low temperature overprotection system is operable whenever the RHR system is in service. This would provide the necessary pressure protection that was lost in engineering analysis of the RHR relief valves.

SAFETY EVALUATION NUMBER 92-SE-JCO-002

DESCRIPTION

A continuation of 92-SE-JCO-001.

SAFETY EVALUATION SUMMARY

The restrictions on RHR relief line capabilities require that RHR not be placed in service until the low temperature overprotection system is operable, only one charging pump is capable of autostart, and the emergency condensate storage tank level is greater than or equal to 95 percent with the unit in Modes 1 through 4.

SAFETY EVALUATION NUMBER 92-SE-JCO-003

DESCRIPTION

Potential lack of EQ qualification on RSHX outlet flow transmitters.

SAFETY EVALUATION SUMMARY

An engineering evaluation determined that the RSHX outlet flow transmitters did not provide any required information to the operators in the event of an accident and were not required.

SAFETY EVALUATION NUMBER 92-SE-JCO-004

DESCRIPTION

Continued operation with inoperable reactor head vent isolation valve indication.

SAFETY EVALUATION SUMMARY

Reactor head vent valves that indicate mid position were tagged out with power removed from the valve. This was acceptable since a redundant path of vessel depressurization was available.

SAFETY EVALUATION NUMBER 92-SE-JCO-005

DESCRIPTION

Jumper out up to two cells on Battery 2-BY-B-04 to allow continued operation of the battery until a full repair can be made.

SAFETY EVALUATION SUMMARY

Engineering evaluation determined that 58 cells could provide enough capacity to satisfy the Tech Spec basis of the battery.

SAFETY EVALUATION NUMBER 92-SE-JCO-006

DESCRIPTION

Justification for continued operation with a section of fuel oil line supplying each EDG not being missile protected.

SAFETY EVALUATION SUMMARY

One section of fuel oil transfer line to each EDG was not adequately missile protected. Compensatory measures would be implemented to compensate for the reduction in protection until permanent repairs could be made.

SAFETY EVALUATION NUMBER 92-SE-JCO-007

DESCRIPTION

Specify the required compensatory actions for continued operation with a possible source of Service Water leakage under the foundations of the Service and Turbine buildings.

SAFETY EVALUATION SUMMARY

Operation of both Units above Mode 4 cannot continue with leakage greater than 200 gpm due to inventory loss. Routine monitoring for increased Service Water leakage in the affected areas will be required.

1992 50.59 SAFETY EVALUATIONS REPORTABLE TO THE NRC

JUMPERS

92-SE-JMP-001
92-SE-JMP-002
92-SE-JMP-003
92-SE-JMP-004
92-SE-JMP-005
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92-SE-JMP-068
92-SE-JMP-069
92-SE-JMP-070
92-SE-JMP-071
92-SE-JMP-072

SAFETY EVALUATION NUMBER 92-SE-JMP-001

DESCRIPTION

Install temporary Gaitronics in the Auxiliary Building Penetration Area.

To provide communications via Gaitronics to and from the Auxiliary Building Penetration Area. This will eliminate the current practice of having to exit a contaminated area to use the Gaitronics.

SAFETY EVALUATION SUMMARY

A temporary Gaitronics will be installed in the auxiliary building penetration area to provide communications via Gaitronics to the area. The purpose is to eliminate the need to exit a contaminated area to use the Gaitronics.

The temporary Gaitronics will apply a negligible load to the Vital bus.

Fuses will prevent feedback of an electrical fault into the permanent Gaitronics or the Vital Bus.

The temporary Gaitronics will be mounted adequately so that it is not a seismic concern.

SAFETY EVALUATION NUMBER 92-SE-JMP-002

DESCRIPTION

Disable the Unit 2 annunciator associated with the load shed circuit being placed into the defeat position.

To provide a "black board" concept since redundant indication is already provided by the corresponding annunciator on the Unit 1 panel.

SAFETY EVALUATION SUMMARY

The jumper will only defeat a single input into a single redundant annunciator. The operation of all plant systems and components is otherwise unaffected.

The ability of the Emergency Diesel Generators is unaffected. The protection afforded by the load shed scheme is not required while Unit 1 is shutdown, but if it were placed into service, even with the jumper installed, the system would function as designed.

SAFETY EVALUATION NUMBER 92-SE-JMP-003

DESCRIPTION

Jumper the Unit 2 calorimetric inputs to the Unit 1 P-250 computer. The Unit 2 P-250 computer is inoperable and it is desirable to use the Unit 1 P-250 to calculate the Unit calorimetric power.

SAFETY EVALUATION SUMMARY

The P-250 computer points are electrically isolated, therefore the vital busses can not be cross-tied through the jumper. The P-250 inputs are not safety related and are isolated from all safety related instrumentation.

SAFETY EVALUATION NUMBER 92-SE-JMP-004

DESCRIPTION

The jumper will deenergize the solenoids for 2-SV-TV-200A and C and allow the valves to open. The Moisture Separator Reheaters will drain to the 1st point feedwater heaters through this path.

The level switch that is feeding the circuit is sending a false high level signal and preventing this drain path from opening. The level switch is degraded and the jumper will permit corrective maintenance.

SAFETY EVALUATION SUMMARY

The secondary drains system is not Technical Specification or Safety Related. No code or integrity parameter will be changed by this jumper.

The extraction steam motor operated valve closure function on hi-hi level remains operational. This function will, on a hi-hi level, function to terminate the level increase.

SAFETY EVALUATION NUMBER 92-SE-JMP-005

DESCRIPTION

The jumper will remove the generator exciter differential overcurrent relay from service for routine maintenance during the outage. The jumper will protect the 22 kv system by blocking a possible path through the relay when returning backfeed to service.

SAFETY EVALUATION SUMMARY

An unreviewed safety question does not exist because the generator is currently off-line and the relay protection is not required. The jumper will be removed before the generator is returned to service.

SAFETY EVALUATION NUMBER 92-SE-JMP-006

DESCRIPTION

The jumper consists of a hose, valve, and fittings to be installed between 1-DG-80 and 1-SI-78. The purpose of the jumper is to recover the Primary Drains Transfer Tank discharge and return the water to the Reactor Coolant System.

SAFETY EVALUATION SUMMARY

The hose, valve, and fitting are rated for the service conditions. The jumper is verified leaktight after installation and periodically checked until removed and returned to the normal configuration. A potential of the loss of Reactor Coolant System inventory is not created because of a installed check valve in the return line.

The potential loss of Primary Drains Transfer Tank discharge water to the Auxiliary Building floor would be identified during the periodic inspections of the jumper.

SAFETY EVALUATION NUMBER 92-SE-JMP-007

DESCRIPTION

The jumper will allow operation of 1-CW-MOV-100D with the Circulation Water pumps secured. The purpose of the operation is to allow checks of the limit switches and direction of travel following actuator replacement.

SAFETY EVALUATION SUMMARY

The Circulation Water System is not safety related and all the associated pumps will be secured during the evolution.

SAFETY EVALUATION NUMBER 92-SE-JMP-008

DESCRIPTION

The jumper will defeat the start permissives for 1-CW-P-1D for an uncoupled run to allow for post maintenance testing. The jumper involves defeating two sets of electrical contacts and lifting one lead.

SAFETY EVALUATION SUMMARY

The probability of the applicable accidents (turbine trips, turbine building flooding) is not increased since the pump motor is to be run while the pump is isolated from the remainder of the system. The motor is being tested uncoupled and there will be no unusual loads or conditions on the pump.

The reactor protective circuitry is not affected in any way. The jumper is installed on a non safetv related system.

SAFETY EVALUATION NUMBER 92-SE-JMP-009

DESCRIPTION

The jumper will defeat the start permissive for the High Pressure Heater Drain Pumps for an uncoupled run to allow for post maintenance testing. The pump motors are uncoupled and isolated from the remainder of the system and the operational equipment is not affected.

SAFETY EVALUATION SUMMARY

The probability of the applicable accidents (loss of main feedwater) is not increased since the pump motor is to be run while the pump is isolated from the remainder of the system. The motor is being tested uncoupled and there will be no unusual loads or conditions on the pump.

The reactor protective circuitry is not affected in any way. The jumper is installed on a non safety related system.

SAFETY EVALUATION NUMBER 92-SE-JMP-010

DESCRIPTION

The jumper will remove the Unit 2 fuel handling crane hoist interlocks from service. The hoist interlock is interlocked with the load cell to prevent lifting heavy loads in the fuel pool. The Unit 2 hoist must be used to place fuel inspection equipment in the fuel pool in preparation for the Unit 2 refueling outage.

SAFETY EVALUATION SUMMARY

The jumpered hoist will not be used to move any component other than fuel inspection equipment until the interlock circuit is repaired. A calibrated spring scale rated at 2 tons will be used in place of the existing load cell when moving the equipment. All of the other precautions of the fuel building crane operation provided in the station procedures shall be complied with.

There are no unreviewed safety issues because the load restrictions provided in the Technical Specifications and the station procedures will be met.

SAFETY EVALUATION NUMBER 92-SE-JMP-011

DESCRIPTION

The jumper will allow a uncoupled test run of the Unit 1 B Main Feedwater Pump Motor 1B2 in order to verify correct phasing for proper rotation and to allow for collection of other data on the motor operation. The test run will be performed during Mode 5 operation and will not require interaction with other systems. No electrical protection devices are being disabled for this test run. The evolution is part of the normal post maintenance testing practice for this size of motor and does not require any changes to the facility.

SAFETY EVALUATION SUMMARY

The jumper does not increase the probability of occurrence of an accident or malfunction of equipment important to safety previously evaluated in the UFSAR. The uncoupled run is being performed in Mode 5 and the Main Feedwater System is not required to be in service. The margin of safety as defined in basis of the Technical Specifications has not been reduced during this evolution.

SAFETY EVALUATION NUMBER 92-SE-JMP-012

DESCRIPTION

Install temporary Gaitronics in the Auxiliary Building Penetration Area.

To provide communications via Gaitronics to and from the Auxiliary Building Penetration Area. This will eliminate the current practice of having to exit a contaminated area to use the Gaitronics.

SAFETY EVALUATION SUMMARY

A temporary Gaitronics will be installed in the auxiliary building penetration area to provide communications via Gaitronics to the area. The purpose is to eliminate the need to exit a contaminated area to use the Gaitronics.

The temporary Gaitronics will apply a negligible load to the Vital bus.

Fuses will prevent feedback of an electrical fault into the permanent Gaitronics or the Vital Bus.

The temporary Gaitronics will be mounted adequately so that it is not a seismic concern.

SAFETY EVALUATION NUMBER 92-SE-JMP-013

DESCRIPTION

Jumper contacts in the "A" loop hot leg isolation valve circuit to allow the hot leg isolation valve to be opened. The "A" loop hot leg isolation valve logic is not operable. This jumper will allow the valve to be operable.

SAFETY EVALUATION SUMMARY

The intent of the interlocks will be met. This is a permissive to open rather than an automatic safety function. Therefore administrative control is sufficient as a substitute for the interlock and no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-014

DESCRIPTION

The jumper will allow operation of the containment supply and exhaust fans below the low air handler temperature trip setpoint of 35 degree F. The auxiliary steam system is removed from service and the ability to purge the containment atmosphere needs to be maintained to ensure and release to the containment atmosphere is controlled through the purge and exhaust system if the temperature decreases below the trip setpoint.

SAFETY EVALUATION SUMMARY

The removal of the interlock will ensure continued operation of the associated fans, thus maintaining maximum control over potential releases and the temperatures will not be sufficiently cold to pose a freezing risk to safety related water systems. The jumper will ensure that any unexpected releases will be drawn through the containment exhaust where it will be directed to the charcoal filter system as required.

SAFETY EVALUATION NUMBER 92-SE-JMP-015

DESCRIPTION

The air supply to the Solenoid Operated Valves (SOV) of the Reactor Coolant System (RCS) loop drain valves will be bypassed in order to maintain the loop drains open and allow them to be mechanically blocked open. This will ensure leakage past the loop stop valves is drained to the Primary Drain Transfer Tank (PDTT) preventing leakage out primary manways and/or contamination of maintenance personnel.

SAFETY EVALUATION SUMMARY

The drain valves do have a safety function other than as a pressure boundary. They do not receive any signals to automatically actuate. Therefore, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-016

DESCRIPTION

Install portable heaters in the Unit 1 "H" Emergency Diesel Generator (EDG) Room to maintain lube oil at normal operating temperature because normal room heating is unavailable due to the Unit 2 outage.

SAFETY EVALUATION SUMMARY

Proper restraint and placement of the heaters will ensure that the EDG will not be affected during a seismic event. The heaters will be powered for local lighting receptacle plugs and will not exceed the assumed maximum load on these receptacles considered for accident conditions. Furthermore, these heaters will not be able to overload the lighting panels due to normal circuit breakers. Therefore, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-017

DESCRIPTION

Defeat the lower lube oil reservoir high level alarm for Unit 1 "A" Reactor Coolant Pump. The reservoir is currently at high level and locked in. A containment entry at power would required to adjust the actual level.

SAFETY EVALUATION SUMMARY

Maintenance of annunciator "blackboard" heightens operator awareness of incoming alarms. The UFSAR states that there is both a high and low level alarm. With this jumper both alarms will still operate, however the function of the high level alarm will be reversed with that of normal level.

SAFETY EVALUATION NUMBER 92-SE-JMP-018

DESCRIPTION

Relocate existing wires from a failed double-pole/double-throw microswitch to two existing spare single-pole/double-throw microswitch. The former prevents electrical interlocks from sensing a manipulator crane gripper tube is full-down on a fuel assembly.

SAFETY EVALUATION SUMMARY

The jumper provides the same function as the original switch which has failed. If the jumper fails, its failure mode will be the same as that of the original switch. Therefore, no new accident types are introduced and the consequences of any fuel handling accident are unaffected.

SAFETY EVALUATION NUMBER 92-SE-JMP-019

DESCRIPTION

Jumper out the Unit 2 Service Water Keylock Switch Defeat Annunciator deactivating this nuisance alarm when various service water valves default to the alarm condition when removed from maintenance during the current Unit 2 refueling outage.

SAFETY EVALUATION SUMMARY

With Unit 2 shutdown and many of the subject service water valves physically removed from their normal operating positions for maintenance, the alarm serves no useful purpose as there are no lineup or operability requirements on thee valves in Modes 5 and 6.

SAFETY EVALUATION NUMBER 92-SE-JMP-020

DESCRIPTION

Deactivate the Unit 1 "H" Emergency Diesel Generator (EDG) Trouble Alarm due to low lube oil temperature. The alarm is locked in and not providing any useful information by remaining lit.

SAFETY EVALUATION SUMMARY

A log will be taken every 2 hours to verify lube oil temperature is greater than 90 degrees Fahrenheit. Therefore, installing the jumper does not increase the probability of occurrence or increase the consequences of malfunctions of equipment important to safety.

SAFETY EVALUATION NUMBER 92-SE-JMP-021

DESCRIPTION

Reverse the logic for the Unit 1 "A" Outside Recirculation Spray Pump seal head tank high level alarm to cause it to be not lit with the existing high alarm level because the alarm serves no useful purpose to the Control Room Operator and in accordance with the "blackboard concept" it is desirable to clear the alarm.

SAFETY EVALUATION SUMMARY

The lower seal has been demonstrated to be holding water by numerous performances of the operations procedure. The actual fluid condition in the seal will be periodically verified by the performance of the operations procedure. The high level continues to be operable and will relight if the level in the tank drops below the high alarm setpoint. If that occurs, the jumper will be removed to ensure the low level will be identified. Water has been verified in the head tank and will continue to be verified to ensure adequate cooling will be provided to the seal assembly. Furthermore, no water leakage has been detected in the seal cavity indicating that both seals are reasonably water tight and should perform their design function. Therefore, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-022

DESCRIPTION

The jumper will remove the automatic start and stop function of the incore room sump pump. Without the jumper the incore room sump pump will not start in automatic or manual when a high sump level is present. The sump pump can be operated in manual utilizing the sump hi/hi alarm to start and stop the pump when the jumper is installed.

SAFETY EVALUATION SUMMARY

The sump pump can be operated in manual utilizing the sump hi/hi alarm to start and stop the pump when the jumper is installed. The jumper will require additional actions by the operator since they will have to monitor the alarm and manually control the sump level. Since the sump pump is not safety related nor relied on in any accident scenario and its operation will remain the same (utilizing operator action), a unreviewed safety question does not exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-023

DESCRIPTION

The jumper will bypass the existing line to the main turbine bearing lube oil pressure transmitter. The line must be bypassed because blockage has been identified in the existing line upstream or at the root isolation valve. The new line will be installed from an additional tap and routed to the existing transmitter.

SAFETY EVALUATION SUMMARY

The new line installed by the jumper provides the same fit, function and operation of the transmitter and indicator. Therefore, an unreviewed safety question does not exists. The line does not provide input into any instrumentation except for the transmitter and the output of the transmitter only goes to the indicator. There are no automatic actuation's associated with this instrumentation.

SAFETY EVALUATION NUMBER 92-SE-JMP-024

DESCRIPTION

Add a drain line from the Unit 1 blowdown vent condenser drain valve to a suction drain line at the intake of the Unit 1 blowdown pump.

Current design of the blowdown system results in a water release to the auxiliary building roof if blowdown flow is increased above approximately 60 gpm. This jumper is intended to aid in draining any excess water from the blowdown vent condenser that may be causing the release.

SAFETY EVALUATION SUMMARY

The proposed jumper will add a section of hydro hose between a drain line on the blowdown vent condenser and the suction to the Unit 1 blowdown pump. The intention of this jumper is to allow an additional drain path so that the blowdown flow can be increased without causing a water release to the auxiliary building roof.

The hose is compatible with the system temperature and pressure at the vent condenser. If the hose should fail, it may be isolated without unnecessary risk to the operators, either by the manual valves at the hose connection, or by closing the blowdown trip valves.

The gross activity of the blowdown is typically very low and is currently less than the detection limit of 0.36E-6 microCuries per milliliter. Any water spilled by the failure of this jumper will be contained within the auxiliary building and will not present a radiological hazard.

System operation as described in the UFSAR is not affected. The UFSAR states that steam that flashes in the blowdown tank is condensed back to water in the blowdown vent condenser and is then pumped, together with the rest of the water in the blowdown tank, to liquid waste.

No unreviewed safety concerns are identified by this safety evaluation.

SAFETY EVALUATION NUMBER 92-SE-JMP-025

DESCRIPTION

Jumper out the start permissive and the low suction pressure trip of the Unit 2 "A" and "B" Bearing Cooling pumps for uncoupled runs.

To allow post maintenance testing of the pumps.

SAFETY EVALUATION SUMMARY

All permissives jumpered out will be returned to operable status prior to returning the bearing cooling pumps to service. Running the motors uncoupled from the pump will not adversely affect electrical bus parameters. Required surveillances will be performed prior to declaring the equipment operable.

Because the system (electrical and mechanical) will not be adversely affected, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-026

DESCRIPTION

Remove the bonnets and internals from 2-BD-44 (2" drain around the blowdown tank) and BR-472 (1" check valve located on the "A" BR distillate accumulator) and install flanges with a hose between the two valves to aid in removal of water from the BD tank's vent line.

Current design of the blowdown system results in water release to the auxiliary building roof if blowdown flow is increased above approximately 84 gpm. This jumper is intended to aid in draining any excess water from the blowdown vent condenser that may be causing the release.

SAFETY EVALUATION SUMMARY

The proposed jumper will add a section of hose between a drain line downstream of the blowdown vent condenser and the "A" BR distillate accumulator. This will involve removal of the bonnet and internals from the valves so that a flange with nipple and valve can be installed in place of the bonnet. The intent of the jumper is to allow an additional drain path so that the blowdown flow can be increased without causing a water release to the auxiliary building roof.

The hose and flanges are compatible with the conditions that they will be exposed to. If the flanges or hose would fail the flow can be isolated without unnecessary risk to the operators, either by manual isolation at the hose connection or the blowdown tank or by closing the blowdown trip valves.

The gross activity of the blowdown is typically very low and is currently less than the detection limit of 6.58E-6 microCuries per milliliter. Any water spilled as a result of the failure of this jumper will be contained within the auxiliary building and will not present a radiological hazard.

The UFSAR states that the condensed water from the blowdown tank will be pumped to the liquid waste system. This jumper also pumps water to the liquid waste system.

No unreviewed safety concerns are identified by this safety evaluation.

SAFETY EVALUATION NUMBER 92-SE-JMP-027

DESCRIPTION

The jumpers will jumper out the cold leg stop valve interlock circuitry.

Contacts in the interlock circuitry have a history of not making up which prevents opening of the loop stop valve. The intent of the interlocks will be met by manual verification which will ensure compliance with Technical Specification 3.4.1.5.

SAFETY EVALUATION SUMMARY

These jumpers allow for the cold leg loop stop valve to be opened once the requirements of flow (125 gpm recirculation flow for 90 minutes) and temperature (Tc within 20°F of the highest Tc of an operating loop) have been met should the contacts in the interlock circuitry fail to make up. Since the intent of the interlock is met and its only purpose is a permissive for opening the valves (i.e., interlocks do not perform an automatic safety function), administrative control is acceptable and no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-028

DESCRIPTION

Installation of a temporary sump pump in the Unit 2 Safeguards trench sump.

The Unit 2 Safeguards trench sump pumps are out of commission.

SAFETY EVALUATION SUMMARY

It is desired to pump the Safeguards sump to the high level liquid waste tanks. A temporary float operated pump will be installed. The system is not safety related. There are no affects on any accident analysis. Safeguards sump pumps are not needed to mitigate any design basis events. Control of pumped liquid is adequate to ensure no radiation hazards are created.

SAFETY EVALUATION NUMBER 92-SE-JMP-029

DESCRIPTION

Jumper out cold leg stop valve position for the control circuit of "B" Reactor Coolant Pump (RCP).

The cold leg stop valve is damaged preventing the open limit from making up even though the valve is open.

SAFETY EVALUATION SUMMARY

The interlock being jumpered out exists to assure that a discharge flow path is available to the RCP prior to starting. The "B" cold leg loop stop valve was damaged preventing the open limit from making up even though the valve is open. Since the valve is open, it is acceptable to jumper out this permissive.

SAFETY EVALUATION NUMBER 92-SE-JMP-030

DESCRIPTION

Support uncoupled maintenance test runs of Unit 2 "A" and "C" main feedwater pump motors.

SAFETY EVALUATION SUMMARY

All permissives jumpered out will be returned to operable status prior to returning the feedwater pumps to service. Running the motors uncoupled from the pump will not adversely affect the system performance and will not adversely affect electrical buss parameters. Required surveillance's will be performed prior to declaring the equipment operable.

Because the system (electrical and mechanical) will not be adversely affected, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-031

DESCRI TION

Permit uncoupled post maintenance test runs of Unit 2 "A and "B" high pressure heater drain pumps.

SAFETY EVALUATION SUMMARY

An unreviewed safety question does not exist because:

1. The probability of the applicable accidents (loss of main feedwater) is not increased since the pump motor is to be test run while the pump is isolated from the remainder of the system. The motor is to be tested uncoupled and there will be no unusual loads or conditions on the pump.

2. The consequences of the applicable accidents is not increased since the pump motor is to be test run while the pump is isolated from the remainder of the system. The motor is to be tested uncoupled and there will be no unusual loads or conditions on the pump.

3. No new accident type is created since the motor is to be run uncoupled and the pump isolated.

4. The reactor protective circuitry is not affected in any way.

5. No part of the jumper is on a safety related system.

6. No Technical Specifications are involved.

SAFETY EVALUATION NUMBER 92-SE-JMP-032

DESCRIPTION

Jumper out the fire protection trip of the Bearing Cooling tower fans.

To prevent the Bearing Cooling fans from tripping due to an air leak in the system.

SAFETY EVALUATION SUMMARY

The Bearing Cooling and affected Fire Protection systems are not safety related nor are they required by Technical Specifications. Installation of the jumper does not affect any safety related systems and would not affect the ability of any safety related systems to perform its function for safe shutdown of the units. A fire watch will be posted to notify the control room of a fire.

SAFETY EVALUATION NUMBER 92-SE-JMP-033

DESCRIPTION

Installation of rubber hoses on the discharges of the Unit 2 Safeguards Valve Pit sump pumps to provide means to remove accumulated water in the valve pit during maintenance on the permanently installed piping.

This is to provide a means to discharge accumulated water in the Unit 2 Safeguards Valve Pit while maintenance is performed on the permanently installed lines.

SAFETY EVALUATION SUMMARY

No unreviewed safety question exists for the following reasons:

1. The valve pit sump pumps are not safety related equipment and their use or failure would not prevent safety related equipment from performing intended functions.

2. The pressure rating of the hoses shall be greater than the design head of the sump pumps. Therefore, no increase in potential for sump pump malfunction. Additionally, the integrity of the jumper shall be verified prior to use.

3. The valve pit level alarms are unaffected by this jumper. Therefore, the operator's ability to monitor/control the plant is unaffected.

SAFETY EVALUATION NUMBER 92-SE-JMP-034

DESCRIPTION

Reverse the logic for 1-RS-P-2A (Outside Recirculation Spray Pump) seal head tank high level alarm (1-RS-LS-102A).

The seal head tank high/low level alarm is locked in. The seal head tank level is verified to be high apparently from minor leakage of the upper seal. It is desirable to maintain the annunciator panel in accordance with the "blackboard" concept. It would be prudent to reconfigure the alarm such that the operator will be aware of a change in the seal head tank level.

SAFETY EVALUATION SUMMARY

No unreviewed safety question exists with regard to reversing the logic for the 1-RS-P-2A seal head tank high level switch for the following reasons:

1. The lower seal has been demonstrated to be holding water by numerous performances of 1-OP-7.5. Therefore, at least one of the tandem seals is intact and will ensure that the pump will be capable of performing its intended design function and containment integrity will be maintained.

2. The actual fluid condition in the seal head tank will be periodically verified by the performance of 1-OP-7.5.

3. The high level switch continues to be operable. The alarm will relight if the level in the tank drops below the high level setpoint.

4. If the alarm lights, the jumper will be removed to ensure that a low level would be identified. The annunciator response will be changed to reflect this requirement.

5. Water has been verified in the seal head tank and will continue to be verified periodically. This verifies adequate cooling will be provided to the seal assembly. Also, no water leakage has been detected in the seal cavity (pumping ring area) indicating that both seals are reasonably water tight and should perform their design function.

SAFETY EVALUATION NUMBER 92-SE-JMP-035

DESCRIPTION

Jumper out the fire protection trip of the Bearing Cooling Tower fans from cell 1A.

To prevent Bearing Cooling fans from tripping while replacing the fire protection lines.

SAFETY EVALUATION SUMMARY

The Bearing Cooling and affected Fire Protection systems are not safety related nor are they required by Technical Specifications. Installation of the jumper does not affect any safety related systems and would not affect the ability of any safety related systems to perform its function for safe shutdown of the units. The affected Bearing Cooling fan will be tagged out or a fire watch will be posted while the jumper is installed.

SAFETY EVALUATION NUMBER 92-SE-JMP-036

DESCRIPTION

Reconfigure the lower lube oil reservoir alarm for 2-RC-P-1B such that it is clear with a high level condition and relights if the level drops from the high alarm setpoint.

This is to support the "Blackboard Concept".

SAFETY EVALUATION SUMMARY

It was determined in Safety Evaluation 89-SE-JMP-034 and 91-SE-JMP-051 that there was no unreviewed safety concern if the high and normal level alarms were reversed. This action was taken to "darken" a lit annunciator. In that case, if the level remained high, the alarm would clear and if and when the level decreased to the normal range, the alarm would be received. This method of "blackboard" maintained the level of information available to the operators, but in a slightly different method. In current plant conditions, the lower reservoir level on the A pump is just above its normal/high setpoint. The constant alarm detracts from the operator's awareness of the actual conditions of the pump. Since the annunciator is a common high/low level alarm, it is necessary to periodically determine if the alarm is a high or a low value.

A valid low level alarm in the reservoir is a condition that requires prompt action in order to protect the pump. It has been determined by Westinghouse that a high level in the reservoir is acceptable for long term plant operation. Operation with an alarm that is locked in is not acceptable from the standpoint of equipment safety. If the lube oil reservoir were to suddenly fail, there would be an increased likelihood that the alarm would be dismissed as unreliable until major damage to the pump.

SAFETY EVALUATION NUMBER 92-SE-JMP-037

DESCRIPTION

Defeat input to the Control Room Annunciators for "Bearing Cooling Tower Fan Loss of Power or Motor Overload", "Fire Water System Trouble", and "Fire Water System Initiated" for Bearing Cooling Tower Fan 1-BC-F-1A.

To comply with the blackboard concept for increased operator awareness. This jumper will allow reflash of the affected annunciators on input from the 1B bearing coolant fan.

SAFETY EVALUATION SUMMARY

Maintenance is ongoing to replace the fire protection piping in the 1A cell of the bearing cooling tower. This maintenance results in several control room annunciators being locked in. These annunciators provide no useful information to the unit operator and in fact, become a distraction when trying to locate an alarming annunciator. The blackboard concept was developed because of this concern.

These jumpers should be allowed because they are simple and effective. The jumpers only defeat the input from the 1A cell of the bearing cooling tower to control room annunciators and the jumpers will allow the annunciators to alarm from valid signals associated with bearing cooling tower cell 1B. These jumpers have no direct interface with safety related systems or systems important to safety and therefore, there can be no unreviewed safety question.

SAFETY EVALUATION NUMBER 92-SE-JMP-038

DESCRIPTION

Re-configure the alarm card for the Unit 2 "B" Main Steam Reheater (MSR) high level alarm so that the annunciator will be clear with a high level and will alarm with a normal level.

The level in the "B" MSR is currently above the normal operating range and the annunciator is in alarm. This condition distracts the operator and can result in a decreased sensitivity to alarms on the feedwater annunciator panel.

SAFETY EVALUATION SUMMARY

The current level in the "B" MSR is above the normal operating range and the annunciator is locked in alarm. This constant alarm decreases the operator's level of awareness to the other alarms that may occur on the feedwater annunciator panel. The purpose of this jumper is to re-configure the "B" MSR high level alarm so that the alarm will be clear as long as the level remains constant. This re-configuration means that the annunciator will alarm if the level returns to normal or a separate annunciator common to all four will alarm if the level increase to the high-high setpoint.

This re-configuration will provide the operator with the same amount of information, but it will be in a slightly different way. Operation of the MSR is not affected in any way. No automatic functions are defeated by this jumper and the MSR high level alarm has no protective functions. Operation of the high level alarm is not addressed in the UFSAR or Technical Specifications.

SAFETY EVALUATION NUMBER 92-SE-JMP-039

DESCRIPTION

Pull Hathaway patchcord for Control Room annunciator 2A-A3, "CONT RECIRC FANS 1A, B, C AOD CLOSED", for 2-HV-AOD-257C (H Bus) input signal.

To support the Main Control Room "Blackboard Concept".

SAFETY EVALUATION SUMMARY

The indication for 2-HV-AOD-257C (H Bus) requires corrective maintenance. At present, it indicates that the damper is closed. However, the damper has been verified to be open. The malfunctioning indicator results in the constant alarming of the annunciator in the Control Room. To support the "Blackboard Concept", management requests that this alarm, which is providing no useful information to the operator, be defeated until corrective maintenance can be performed on the malfunctioning indicator.

No unreviewed safety question exists since:

1. The alarm provides indication only, no protective features are defeated.

2. The potential for an unobserved damper closure is unchanged with the alarm input defeated versus with the alarm locked in.

SAFETY EVALUATION NUMBER 92-SE-JMP-040

DESCRIPTION

This safety evaluation allows the uncoupled run of 2-CW-P-1C.

SAFETY EVALUATION SUMMARY

All permissives jumpered out will be returned to operable status prior to returning the equipment to service. Running the motor uncoupled from the pump will not affect system performance and will not adversely affect electrical bus parameters. Required surveillances will be performed prior to returning the equipment to operable status. Because the system (both electrical and mechanical) will not be adversely affected, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-041

DESCRIPTION

Jumper out the automatic actuation of the high-high level switch for the First Point Feedwater Heater 1A.

The level switch is degraded and requires corrective maintenance. During this maintenance, it is necessary to block the automatic actuations of the switch.

SAFETY EVALUATION SUMMARY

During the duration of this jumper, the automatic functions provided by SD-LS-210A will not be available; that is, the high-high level alarm, a high-high level signal to the ES-MOV-201A interlock, venting the SOV for ES-NRV-201A, and the open signal to ES-TV-200A. None of these controls are described in the UFSAR. This jumper does not affect the normal level control of the affected components in any way.

This jumper is necessary since the level switch is degraded and did not alarm with an actual high-high level in the feedwater heater. If this jumper is not installed, the level switch's automatic actuations will inadvertently occur during the repair process. Since the level switch is currently operating in a degraded mode, the overall safety of the plant is increased by allowing the jumper to be installed and the switch repaired.

SAFETY EVALUATION NUMBER 92-SE-JMP-042

DESCRIPTION

Reconfigure the Unit 2 "A" Reactor Coolant Pump lower lube oil reservoir alarm such that it is clear with a high level condition and relights if the level drops from the high alarm setpoint.

This is to support the Main Control Room Annunciator blackboard concept.

SAFETY EVALUATION SUMMARY

It was determined in Safety Evaluation 89-SE-JMP-034 and 91-SE-JMP-051 that there was no unreviewed safety concern if the high and normal level alarms were reversed. This action was taken to "darken" a lit annunciator. In that case, if the level remained high, the alarm would be clear and if and when the level decreased to the normal range, the alarm would be received. This method of "blackboard" maintained the level of information available to the operators, but in a slightly different method. In current plant conditions, the lower reservoir on the "A" pump is just above its normal/high setpoint. The constant alarm detracts from the operator's awareness of the actual conditions of the pump. Since the annunciator is a common high/low level alarm, it is necessary to periodically determine if the alarm is a high or a low value.

A valid low level alarm in the reservoir is a condition that requires prompt action in order to protect the pump. It has been determined by Westinghouse that a high level in the reservoir is acceptable for long term plant operation. Operation with an alarm that is locked in is not acceptable from the standpoint of equipment safety. If the lube oil reservoir were to suddenly fail, there would be an increased likelihood that the alarm would be dismissed as unreliable until major damage occurred to the pump.

SAFETY EVALUATION NUMBER 92-SE-JMP-043

DESCRIPTION

Rewire the pressure indicator in the Main Control Room (MCR) for the Unit 2 service water pump 1B.

This is to correct instrument off-set associated with a grounded wire in the instrument loop.

SAFETY EVALUATION SUMMARY

Currently the "B" service water pump discharge pressure in the MCR reads approximately 3 psig higher than the local pressure gage. The instrument shop has determined the root cause of the instrument off-set is due to a 10K ground on the positive wire of the cable which carries the signal from the transmitter to the instrument rack. The instrument shop, through the troubleshooting process, has proved, by rolling wires, the loop will operate correctly with the 10K ground on the negative wire.

There are no spare cables which could be used to route the signal to the rack room. A new cable can't be pulled until a Design Change Package is written and a new cable purchased. It is desirable, due to all the limitations on the service water system, that the control room operator have indication of the "B" service water pump discharge pressure without sending an operator to the service water pump house to read the local gauge.

The instrument loop only provides indication in the MCR and the SPDS/ERF computer. There are no automatic control or protection functions associated with this loop. Rolling the wires will not adversely affect any other safety related system or component. The loop will operate within its design parameters. There are no unreviewed safety questions associated with this jumper.

SAFETY EVALUATION NUMBER 92-SE-JMP-044

DESCRIPTION

Install cooling fans and an air conditioning unit at the service air compressors intake.

The service air compressors are air cooled units. Due to the hot weather, the units are tripping because the high temperature trip setpoints are being reached. In order to lower the operating temperatures of the units, fans and an air conditioner are being installed. The fans and the air conditioning unit will supply cooler air to the unit while the fans on the exhaust will aid in removal of heat generated by the unit.

SAFETY EVALUATION SUMMARY

The service air compressors are not safety related and are not taken credit for in any accident analysis. Installation of the fans and the air conditioning unit will aid in reducing the operating temperature of the units which will increase their reliability during hit weather conditions. The fans and the air conditioning unit will be powered from station service and construction power, therefore there is no concern with loading on the emergency busses. For the reasons stated above, an unreviewed safety question does not exist.

SAFETY EVALUATION NUMBER 92-SE-JMP-045

DESCRIPTION

Use an existing G bus disconnect as a power supply for temporary fans to be used on the Unit 1 transformers.

High ambient temperatures are causing elevated temperatures on various transformers. The temporary fans are intended to provide additional cooling until permanent changes can be completed.

SAFETY EVALUATION SUMMARY

The power supply to be used is from an existing disconnect from MCC 1G2-1, breaker E3. This disconnect was originally installed to supply power to the Dining Cars when they were located inside the protected area. The power supply is rated for 200 amps and the fans will draw a small fraction of that value. The disconnect is physically located near the transformers so that a long cable run is not required. This physical placement helps reduce the possibility of personnel injury and equipment damage. For these reasons, this jumper does not constitute an unreviewed safety concern.

SAFETY EVALUATION NUMBER 92-SE-JMP-046

DESCRIPTION

Hardwire disconnected cooling fan motors together on the Station Service Transformers (SST) and supply temporary power from 1-EP-MCC-1G2-1 E-3.

A number of fan motors on the SST's were upgraded and the new motors drew higher amps. This led to overloading of the breake s therefore some of the fans were disconnected. High ambient temperatures are causing evaluated temperatures on the transformers.

SAFETY EVALUATION SUMMARY

The jumper will provide power to the disconnected fan motors from a temporary power supply fed off of the G bus. This will reduce the operating temperatures of the transformers. The temporary power supply has breakers which will protect the G bus distribution system from electrical faults. No additional loads are placed on any emergency bus as a result of this jumper. If the jumper were to fail the cooling provided to the transformer would be as before this jumper. In addition none of the protection functions of the transformer are being affected by this jumper. The capacity of the upstream power supply, Reserve Station Service Transformer 1C, has been verified to be unaffected by this minor load. For these reasons an unreviewed safety question does not exist.

SAFETY EVALUATION NUMBER 92-SE-JMP-047

DESCRIPTIOI

Jumper out up to two cells on Battery 2-BY-B-04. This is to allow continued operation of the battery with up to two deficient cells removed from service until the battery is restored to 60 cells which is the normal number of cells.

SAFETY EVALUATION SUMMARY

The P-250 computer inverter will remain tagged out of service until the battery is returned to its normal configuration. This will ensure that the battery's terminal voltage and capacity will be sufficient to provide accident loads and meet the Technical Specification limitation of 129 volts terminal voltage. This was determined by Stone and Webster Calculation 02072.2310 (E-1).

An unreviewed safety question does not exist because:

Cell jumpering does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR because adequate battery capacity will be available to perform its design function.

Cell jumpering does not create a possibility for an accident or a malfunction of a different type than evaluated in the UFSAR because the work and equipment are isolated to the battery room and no interconnections exist with other channels or equipment.

Cell jumpering does not reduce the margin to safety because the battery has sufficient capacity to provide the design safety function.

SAFETY EVALUATION NUMBER 92-SE-JMP-048

DESCRIPTION

Install a jumper from the load side of 2-EP-MCC-2G1-1S-B1L to the line side of 1-EP-MCC-1G1-1S-B2. This jumper will allow for 1A Bearing Lubrication Pump to be powered from 2G bus due to a fire that occurred in 1-EP-MCC-1G1-1S-B2.

SAFETY EVALUATION SUMMARY

Electrical Engineering has evaluated the additional loading on the "C" Reserve Station Service Transformer for GDC-17 concerns and found it to be acceptable. Separation between transfer busses "E" and "F" will be maintained via an open breaker which will be administratively controlled. Since the impact on the electrical distribution system is negligible, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-049

DESCRIPTION

Jumper out pump/motor permissives between 2-SW-P-1A and 2-SW-P-4. This allows 2-SW-P-4 motor to be run uncoupled for post maintenance testing to verify proper rotation.

SAFETY EVALUATION SUMMARY

All permissives jumpered out will be returned to operable status prior to returning the equipment to service. Running the motor uncoupled from the pump will not affect system performance. Because the system (both mechanical and electrical) will not be adversely affected, no unreviewed safety question exists. The Undervoltage trip for 2-SW-P-1A and 2-SW-P-4 will remain operable; therefore, diesel overloading is not a concern.

SAFETY EVALUATION NUMBER 92-SE-JMP-050

DESCRIPTION

To jumper out the Circulating Water pump trip logic while logic is being re-energized. This ensures that all four Circulating Water pumps on a unit do not trip due to a spurious signal when the circuit is re-energized.

SAFETY EVALUATION SUMMARY

The jumper returns the Circulating Water trip logic in a controlled manner to assure that all four Circulating Water pumps do not trip due to a spurious fault. By returning the circuit in a controlled manner, a loss of all Circulating Water pumps will not occur and will not place the units in jeopardy.

Accident Probability does not increase because the jumper protects against the loss of Circulating Water pumps.

Accident Consequences do not increase because the condenser remains available as a heat sink.

No unique accident probability is generated because the jumper explicitly protects against such an event.

SAFETY EVALUATION NUMBER 92-SE-JMP-051

DESCRIPTION

To install temporary forced ventilation by means of a Coppus blower for 2-BY-B-1 battery room due to the failure of the normal supply fan. This ensures adequate ventilation for the battery room until the normal supply fan is replaced.

SAFETY EVALUATION SUMMARY

The Coppus blower is 150% capacity of the installed fan. Sufficient flow will be maintained to prevent hydrogen concentration from exceeding 2% and maintain battery room temperature below 85°F.

The normal supply fan is powered from the emergency bus while the Coppus blower is supplied from the Station Service bus. The UFSAR states that ventilation may be secured in the battery room for up to 24 hours during a battery overcharge and the hydrogen concentration will remain below 2%. Therefore, operators will have sufficient time to take compensatory actions without exceeding the design basis.

SAFETY EVALUATION NUMBER 92-SE-JMP-051 Rev. 1

DESCRIPTION

To install temporary forced ventilation by means of a Coppus blower for 2-BY-B-1 battery room due to the failure of the normal supply fan. This ensures adequate ventilation for the battery room until the normal supply fan is replaced.

SAFETY EVALUATION SUMMARY

The Coppus blower is 150% capacity of the installed fan. Sufficient flow will be maintained to prevent hydrogen concentration from exceeding 2% and maintain battery room temperature below 85°F.

The normal supply fan is powered from the emergency bus while the Coppus blower is supplied from the Station Service bus. The UFSAR states that ventilation may be secured in the battery room for up to 24 hours during a battery overcharge and the hydrogen concentration will remain below 2%. Therefore, operators will have sufficient time to take compensatory actions without exceeding the design basis.

SAFETY EVALUATION NUMBER 92-SE-JMP-051 Rev. 2

DESCRIPTION

To install temporary forced ventilation by means of a Coppus blower for 2-BY-B-1 battery room due to the failure of the normal supply fan. This ensures adequate ventilation for the battery room until the normal supply fan is replaced.

SAFETY EVALUATION SUMMARY

The Coppus blower is 150% capacity of the installed fan. Sufficient flow will be maintained to prevent hydrogen concentration from exceeding 2% and maintain battery room temperature below 85°F.

The normal supply fan is powered from the emergency bus while the Coppus blower is supplied from the Station Service bus. The UFSAR states that ventilation may be secured in the battery room for up to 24 hours during a battery overcharge and the hydrogen concentration will remain below 2%. Therefore, operators will have sufficient time to take compensatory actions without exceeding the design basis.

SAFETY EVALUATION NUMBER 92-SE-JMP-052

DESCRIPTION

A temporary sump pump has been installed in the Service Water Pump House (SWPH) while the existing sur p pumps (01-SW-P-3A,B) are being repaired. This jumper will provide capability to pump down the sump while the other pumps are being repaired.

SAFETY EVALUATION SUMMARY

The temporary sump pump is a like-for-like replacement and there is no net change in pumping capacity or system pressures. Design Engineering has reviewed the loading on the bus due to the temporary sump pump and concluded that there is a reduction in loading and that it is acceptable.

SAFETY EVALUATION NUMBER 92-SE-JMP-053

DESCRIPTION

The "A" CW pump (01-CW-P-1A) bearing will not pass sufficient flow to satisfy the pump start logic (10 gpm bearing lube flow minimum). This interlock will be jumpered out and maintenance personnel will locally verify that flow is adequate to start the pump.

SAFETY EVALUATION SUMMARY

The CW pumps are not safety related nor do they perform any safety related functions. The pumps are not required to mitigate any Chapter 15 accidents. There is adequate breaker protection between the CW pump and the G Bus. If the CW pump seizes or takes the bus down, a loss of vacuum turbine trip will occur due the loss of all CW pumps. This event is analyzed in the UFSAR.

The jumper will not disable any motor protection features or pump trips. Maintenance personnel will locally verify adequate flow to the bearings prior to start of the pump.

SAFETY EVALUATION NUMBER 92-SE-JMP-054

DESCRIPTION

The annunciator which indicates that the mechanical chiller has tripped is locked in with the chiller in operation. A jumper will be installed to eliminate the annunciator since it provides no valid alarm at this time and is a distraction to the OATC.

SAFETY EVALUATION SUMMARY

Currently the annunciator which alarms when the mechanical chiller trips is in with the chiller operating properly. The alarm is in due to a faulty relay. The alarm will be defeated until the relay is replaced since it does not provide a valid alarm and is distraction to the OATC. Chiller operation is regularly checked by the turbine building operator as part of his/her rounds.

No unreviewed safety question exists for the following reasons:

1. The alarm provides indication only and has no protection or control functions.

2..Loss of the chiller would be detected by other indication in the control room such as decreasing containment partial pressure indication and increasing chilled water supply to containment temperature.

3. The potential for loss of the chiller remains unchanged whether the alarm is locked in erroneously or defeated.

SAFETY EVALUATION NUMBER 92-SE-JMP-055

DESCRIPTION

Following maintenance on the Aux SW pump it was desired to run the motor uncoupled to verify proper rotation. A jumper will be installed to allow breaker closure on 01-SW-P-4 with the breaker for 01-SW-P-1A closed. Normal interlock prevents both pump breakers being closed at the same time.

SAFETY EVALUATION SUMMARY

The permissive jumpered out will be returned to operable status prior to returning the equipment to service. Running the motor uncoupled from the pump will not affect system performance and will not adversely affect electrical bus parameters. The appropriate action of TS 3.7.4.1 will be entered for inoperability of 01-SW-P-1A since the auto/manual start capability will be disabled while the breaker for 01-SW-P-4 is closed. Required surveillances will be performed prior to returning the equipment to operable status. Because the system (both electrical and mechanical) will not be adversely affected, no unreviewed safety question exists. The undervoltage (UV) trip for both of the pumps will remain operable, as will the time delay auto sequencing contacts in the start circuitry following any UV restoration; therefore diesel overloading is not a concern. Therefore an unreviewed safety question does not exist.

SAFETY EVALUATION NUMBER 92-SE-JMP-056

DESCRIPTION

The patchcord for the "A" CW pump bearing lube low flow input into the "Bearing Lube Low Flow" alarm will be removed from the Hathaway. Currently the alarm is locked in and is a distraction to the OATC. Removal of the input will clear the annunciator.

SAFETY EVALUATION SUMMARY

The unit 1 "A" CW pump radial bearing is damaged and will not pass bearing lube water. The bearing must be replaced before this condition can be corrected. This is causing the "Bearing Lube Low Flow" alarm to be locked in and is a distraction to the OATC. The jumper will only defeat the input from the "A" CW pump. If one of the other CW pumps were to experience bearing lube low flow the alarm would annunciate.

The jumper has no direct interface with safety related systems or systems important to safety. Therefore no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-JMP-057

DESCRIPTION

The setpoint for bearing lube pump auto start (01-BL-PS-113) is being reduced from 50 psig to 40 psig header pressure. Reducing the setpoint will eliminate nuisance starts of the standby bearing lube pump.

SAFETY EVALUATION SUMMARY

Bearing lube (BL) header pressure is currently near the auto start setpoint for the standby pump. It is desired to reduce the auto start setpoint for the standby pump from 50 psig to 40 psig header pressure in order to prevent the nuisance starts. Header pressure is currently sufficient to supply the circulating water (CW) pumps and will remain sufficient with the setpoint reduced. The screenwash crosstie valve (01-CW-FCV-120) is failed open to augment the supply of water to bearing lube. Operation of the BL system will remain consistent with current practice.

The BL system is not safety related nor is it important to nuclear safety. It is not required to mitigate any Chapter 15 accident. Therefore an unreviewed safety question does not exist.

SAFETY EVALUATION NUMBER 92-SE-JMP-058

DESCRIPTION

The current design of the steam generator blowdown (BD) system results in water being discharged to the Auxiliary Building (AB) roof if blowdown flow is increased too high. A jumper will be added which consists of a section of hose routed from 01-BD-46 (local radiation sample point) to an AB floor drain. This lineup will reduce pressure in the blowdown tank and subsequently allow an increase in blowdown flow rate without releasing water to the roof.

SAFETY EVALUATION SUMMARY

The hose to be used is compatible with the system temperature and pressure at the vent line. If the hose were to fail it could be isolated (manual isolation valve at the hose connection or closure of the BD trip valves) without unnecessary risk to operations personnel.

The gross activity of the blowdown is typically very low and is currently at the lower detection limit of 6.36E-6 microCuries per milliliter. Any water spilled by failure of this jumper would be contained within the AB and would not present a radiological hazard.

Operation of the blowdown system as described in the UFSAR is not adversely affected. The UFSAR states that steam flashing in the blowdown tank is condensed in the blowdown vent condenser and is then pumped, together with the rest of the water in the tank, to the liquid waste system. The jumper will increase the apparent size of the vent line allowing the tank to vent more efficiently and allow a higher blowdown flow rate to be obtained. For these reasons an unreviewed safety question does not exist.

SAFETY EVALUATION NUMBER 92-SE-JMP-059

DESCRIPTION

A jumper will be installed to remove (jumper) one or two deficient cells from Battery 02-BY-B-04 to allow continued operation of the battery until the battery is restored to 60 cells.

SAFETY EVALUATION SUMMARY

An engineering evaluation determined that the battery will maintain a capacity of > 80% with one or two cells jumpered. The seismic design adequacy for the jumpers used to maintain the cells electrically connected was verified so that there would not be any adverse impact to safety related equipment should a DBE occur.

SAFETY EVALUATION NUMBER 92-SE-JMP-060

DESCRIPTION

02-SI-RV-2845B is a relief valve on the discharge of the LHSI pumps. This RV has experienced seat leakage recently during LHSI testing following LHSI pump starts. To resolve the problem the RV will be gagged shut until permanent repairs can be made.

SAFETY EVALUATION SUMMARY

The applicable LHSI piping code, ASME B31.7, 1969, requires that certain piping be protected against overpressurization by the use of relief valves. In order to ensure integrity of the LHSI piping will be maintained, administrative controls will exist to ensure either 02-SI-MOV-2864A or B is open to provide a relief path to the safeguards sump via either 02-SI-RV-2845A or C while 2845B is gagged shut. 02-SI-MOV-2864A and B are both normally open. Thus TS 3.5.2 and 3.5.3 LCOs will be complied with, thereby ensuring LHSI is available (operable) as required to function during a SI.

The intent of the piping code will be maintained because a relief path will exist as assured by administrative control of 02-SI-MOV-2864 A and B to have at least one open at all times.

SAFETY EVALUATION NUMBER 92-SE-JMP-061

DESCRIPTION

The fire protection interlocks from the "A" bearing cooling tower fan cell will be jumpered out. Defeating the interlocks will prevent tripping the bearing cooling (BC) fans while performing maintenance on the "A" cell.

SAFETY EVALUATION SUMMARY

The BC and affected fire protection systems are not safety related nor are they required by Tech Specs. Installation of the jumper does not affect any safety related systems and would not affect the ability of any safety related system to perform its function for safe shutdown of the units. The affected BC fan will be tagged out or a fire watch posted while the jumper is installed.

SAFETY EVALUATION NUMBER 92-SE-JMP-062

DESCRIPTION

A bad switch contact on the incore sump level switch (01-DA-LS-106) is causing invalid control room alarms. The alarm is a distraction to the OATC and serves no useful function. The bad switch contact will be disabled via a jumper.

SAFETY EVALUATION SUMMARY

01-DA-LS-106 is used to control the automatic and manual operation of the incore sump pump as well as provide HI and HI-HI sump level alarms in the control room. Separate contacts on the switch are used for each of the functions. The jumper will only affect one of the alarms and has no impact on operation of the sump pump.

SAFETY EVALUATION NUMBER 92-SE-JMP-063

DESCRIPTION

Install a strip chart recorder on inputs to the P-250 computer from selected main generator parameters to aid in troubleshooting exciter problems.

SAFETY EVALUATION SUMMARY

Installation of the strip chart recorder used selected main generator parameters to aid in the troubleshooting of spurious exciter overexcitation alarms. Parameters are generator voltage, generator amps, megawatts, megavars, and 500Kv bus voltage.

SAFETY EVALUATION NUMBER 92-SE-JMP-064

DESCRIPTION

Temporary installation of a stem blocking device on 1-SD-NRV-133D, D MSR drain line NRV to 1-SD-TK-2C.

SAFETY EVALUATION SUMMARY

The valve stem block will allow the valve to remain open during repairs to the NRV air supply line. With the valve blocked open, a flow path from the D MSR to 1-SD-TK-2C will be maintained. The blocking device will only be installed long enough to repair the air line. Special cautions include that the turbine must be tripped if there is any indication of water induction into the turbine.

SAFETY EVALUATION NUMBER 92-SE-JMP-065

DESCRIPTION

Jumper out fire protection interlocks from the 2-BC-F-1A cell.

SAFETY EVALUATION SUMMARY

This jumper will prevent tripping the bearing cooling fan while performing maintenance on the 2-BC-F-1A cell. Special conditions require that a fire watch be posted while the jumper is in place.

SAFETY EVALUATION NUMBER 92-SE-JMP-066

DESCRIPTION

Temporary installation of a stem blocking device for 1-LW-PCV-109, liquid waste evaporator pressure control valve.

SAFETY EVALUATION SUMMARY

The valve stem blocking device will maintain the valve closed during to 1-CC-RV-119. Jumpering air to the PCV will provide an additional motive force to hold the valve closed while repairing the relief valve. No special concerns since the liquid waste evaporator is abandoned equipment.

SAFETY EVALUATION NUMBER 92-SE-JMP-067

DESCRIPTION

A small pump and chemical addition tank will be used to deliver a small feed of 50 percent citric acid to the Unit 2 Turbine building sump via a floor drain.

SAFETY EVALUATION SUMMARY

The pH of the Turbine building sump has been running too high to allow normal discharge to the environment. The citric acid addition neutralizes the sump to a more normal level. Sump pH will monitored at least twice per working shift and adjusted as necessary. The temporary installation will be removed as soon as possible. All releases to the environment will be in accordance with approved station procedures.

SAFETY EVALUATION NUMBER 92-SE-JMP-068

DESCRIPTION

Jumper a section of hose routed from a PG connection in the Clarifier Building to 1-LW-771, vent valve upstream of the A clarifier demin filter. The PG will flow through the rad monitor 1-LW-RM-111.

SAFETY EVALUATION SUMMARY

The jumper will allow for flushing the Clarifier effluent rad monitor to remove any buildup of contaminants in the rad monitor pig. All hoses and connections are rated for the expected pressure and temperature. All normal effluent from the clarifier will be suspended during the evolution to prevent any unmonitored release of radioactive material. No impact on any safety related systems or components.

SAFETY EVALUATION NUMBER 92-SE-JMP-069

DESCRIPTION

Jumper out the input from 2-BC-P-1A to annunciator 555, "FIRE WATER SYSTEM TROUBLE" and the 'TROUBLE" alarm on the fire protection panel.

SAFETY EVALUATION SUMMARY

2-BC-F-1A is tagged out for maintenance and a jumper was installed to defeat the fire protection system interlocks for that pump. As a result, the fire system trouble alarms are locked in. The alarms serve no useful purpose in this situation. The trouble alarms from all other bearing cooling fans are not affected. No safety related systems are affected in any way.

SAFETY EVALUATION NUMBER 92-SE-JMP-070

DESCRIPTION

Install a 15 volt DC power supply to power the Reheat Control Cabinet to allow manual control to the moisture separator reheaters steam flow control valves during maintenance.

SAFETY EVALUATION SUMMARY

A power supply failure caused the reheat steam supply valves to go closed. No replacement power supply was readily available and it is desirable to maintain the reheat supply valves open during normal operation. The open/closed function of the FCV's will be tested prior to placing the valves back in service. This jumper does not affect the automatic operation of the reheat steam system in any way.

SAFETY EVALUATION NUMBER 92-SE-JMP-071

DESCRIPTION

Jumper out the Circ Water system vacuum priming level switches at the CW pump breaker cubicles for quick restart during potential fish impingement events.

SAFETY EVALUATION SUMMARY

This jumper was prepared as a contingency action against the possibility of a fish impingement event on the Circ Water system travelling screens. During extremely cold weather, certain species of fish are stunned by the cold temperatures and collect in the travelling screens. The elbow vacuum priming subsystem of the CW system have a history of not making up the level switches to allow a Circ Water pump to be started. If this jumper is required, all Circ Water interlocks will be verified manually prior to actually starting a circ water pump.

SAFETY EVALUATION NUMBER 92-SE-JMP-072

DESCRIPTION

Add a Domestic Water jumper to connect a DW source from the Aux Boiler Room to the Containment Access Facility (a temporary clean change building).

SAFETY EVALUATION SUMMARY

The jumper taps into a non-safety related system with a hose rated for the expected system conditions. The hose then ties in with the water supply connection of the temporary clean change facility.

1992 50.59 SAFETY EVALUATIONS REPORTABLE TO THE NRC

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SAFETY EVALUATION NUMBER 92-SE-OT-007

DESCRIPTION

Use of a thimble plug disposal tool to remove thimble plugs from fuel assemblies and place in pre-approved storage locations.

SAFETY EVALUATION SUMMARY

All work will be done in accordance with approved Radiation Work Permits. The thimble plug storage locations have received approval from appropriate individual / departments (FAI). The use of the thimble plug disposal tool does not present an unreviewed safety question, since the the bounding event for fuel handling in the Spent Fuel Pit is the UFSAR Chapter 15.4.5 description of a dropped fuel assembly.

SAFETY EVALUATION NUMBER 92-SE-OT-009

DESCRIPTION

A revised Large Break Loss of Coolant Accident (LBLOCA) analysis has been prepared to accommodate the effects of steam generator tube plugging levels up to 35% in any steam generator.

SAFETY EVALUATION SUMMARY

Because the LBLOCA presents the limiting considerations for core power and total core power peaking, it was necessary to reduce the maximum core power level to 2748 MWt and the maximum allowable Hot Channel Peaking Factor (F_Q) to 2.11 at the core midplane. The change to the power level is until steam generator replacement. The analysis also assumes flow from 1 LHSI pump and 2 HHSI pumps. A change to Tech Specs requires that two HHSI pumps and their associated flowpaths be operable whenever one LHSI pump is inoperable.

SAFETY EVALUATION NUMBER 92-SE-OT-014

DESCRIPTION

Scaffolding will be installed in the Unit 2 Control Room Chiller Room for a period of approximately 75 days.

SAFETY EVALUATION SUMMARY

A similar installation was erected in the Unit 1 chiller room during a previous refueling outage after a detailed Seismic evaluation was performed. The installation will be similar in nature and will conform to all requirements of the Corporate Safety Manual, and ADM-20.49 (Scaffolding Procedure).

SAFETY EVALUATION NUMBER 92-SE-OT-016

DESCRIPTION

This evaluation is for jumpering out the fire protection features in the bearing cooling deluge system to allow maintenance.

SAFETY EVALUATION SUMMARY

Maintenance is sometimes required in the bearing cooling tower area that would cause a deluge system actuation and bearing cooling fan trip. The Bearing Cooling tower and Fire Protection deluge systems are not required by the Tech Specs nor are they safety related. A fire watch will be posted while this jumper is installed to provide fire detection capability.

SAFETY EVALUATION NUMBER 92-SE-OT-017

DESCRIPTION

This evaluates the normal operating practice of maintaining CH-1142 (Letdown from RHR) 10% open during plant operation.

SAFETY EVALUATION SUMMARY

There were two major issues considered: 1) potential for RCS boron dilution and 2) potential for overpressurization of the RHR system.

1) The RHR MOVs are administratively controlled to ensure that RHR is not placed in service until RCS dilution concerns are addressed.
2) RHR system integrity is assured by any one of three relief valves

SAFETY EVALUATION NUMBER 92-SE-OT-018

DESCRIPTION

The change in fuel oil level in the Emergency Diesel Generator Day Tank will be monitored at intervals to calculate the fuel oil consumption rate of the EDG.

SAFETY EVALUATION SUMMARY

The opposite train EDG will be verified operable prior to this test. The test will be aborted if the fuel oil level in the day tank reaches 400 gallons. The fuel oil transfer pumps will be returned to auto before going below the design basis day tank level. A Heise gauge will be installed but will not jeopardize EDG system integrity.

SAFETY EVALUATION NUMBER 92-SE-OT-020

DESCRIPTION

It is desired to temporarily (for about 6 months) delete Fire Suppression valve 1-FP-54 did not pass its 12 month PT (1-PT-100.4) in order to investigate and repair the valve.

SAFETY EVALUATION SUMMARY

1-FP-54 did not pass its 12 month PT (1-PT-100.4) for operability. The valve strokes to full open, but will only stroke 2/3 of the way closed. The deletion is justified since the normal operating position of the valve is open, and isolation of the Fire Suppression system is still provided by 1-FP-55 and 56.

SAFETY EVALUATION NUMBER 92-SE-OT-024

DESCRIPTION

To address the potential safety impact of continued operation of the North Anna Power Station Unit 1 with potentially mobile foreign objects remaining in the secondary side of the A and C steam generators.

SAFETY EVALUATION SUMMARY

During a routine foreign object search, seven objects were identified, and only two could be retrieved. An evaluation was performed which assessed the tube wear potential of each of the five items. The probability of occurrence of a steam generator tube rupture was not increased. Since the tube bundle integrity and leak tightness is expected to be maintained, there is no mechanism for the foreign objects to affect any other portion of the steam generator or the Reactor Coolant System.

SAFETY EVALUATION NUMBER 92-SE-OT-025

DESCRIPTION

This evaluation is for restart of North Anna Unit 1, Cycle 9 with increased levels of Steam Generator Tube Plugging.

SAFETY EVALUATION SUMMARY

It was concluded that all NSSS systems and components will remain within the bounds of existing design analysis results for operation with up to 40% of the tubes plugged in any steam generator. There are, therefore, no safety implications.

It has been concluded that operation under the proposed Technical Specifications changes does not increase the probability of occurrence or consequences of accidents previously analyzed. Further, no new accidents or accident precursors are created as a result of the changes, and the margin of safety is not reduced. No unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-OT-027

DESCRIPTION

This evaluation addresses the potential safety impact of continued operation of the North Anna Unit 1 plant with regard to steam generator tube plug integrity.

SAFETY EVALUATION SUMMARY

Previous Safety Evaluations for Leaking Row 1 Explosive Plugs (91-SE-OT-017) and for the Plug Repair Action Plan (91-SE-OT-018) remain valid for the remainder of Cycle 9. Hot and cold leg video scans were performed on all three steam generators prior to initiation of eddy current testing, in accordance with a written procedure.

SAFETY EVALUATION NUMBER 92-SE-OT-028

DESCRIPTION

Steam Generator tubes identified as having circumferentially oriented indications either at the top of the tubesheet and/or at tube support plate locations are evaluated for the need to plug, plug and stabilize, or to leave in service.

SAFETY EVALUATION SUMMARY

The North Anna Unit 1 cable stabilization program during the January / February 1992 outage is slightly different than the program evaluated in Safety Evaluation 89-SE-OT-045 (Westinghouse Safety Evaluation SECL-89-734-A). However, the current methodology is sound and the original Safety Evaluation remains bounding.

SAFETY EVALUATION NUMBER 92-SE-OT-029

DESCRIPTION

The safety implications of the continued operation of North Anna Unit 1 with unrecovered loose parts in the Reactor Coolant System (RCS).

SAFETY EVALUATION SUMMARY

The purpose of this Safety Evaluation is to address the safety implications of the continued operation of North Anna Unit 1 with unrecovered loose parts in the Reactor Coolant System (RCS). The potential loose parts in the RCS are some screws and an item made of rubber. A review of the loose parts' materials has determined that they do not create a corrosion concern for the RCS materials, nor do they create a contamination concern for the primary side water chemistry.

SAFETY EVALUATION NUMBER 92-SE-OT-030

DESCRIPTION

This evaluation is for a test of cordless phones' effects on the Nuclear Instrumentation System (NIS) and other various instrumentation in the Control Room.

SAFETY EVALUATION SUMMARY

It has been determined that no unreviewed safety question exists if both Units are in Mode 4 or 5 with the Reactor Trip and Bypass Breakers open, an extra operator is available to take action if inadvertent actuations occur, and the cordless phones will be disconnected if entry into the Emergency Plan is required.. It is anticipated that only the NIS will be affected. If a Reactor protection System Actuation occurs, (as is possible due to the RF nature of this test), no adverse effect is expected since the Reactor Trip Breakers are open.

SAFETY EVALUATION NUMBER 92-SE-OT-031

DESCRIPTION

Provide temporary power to selected loads from opposite 480-volt emergency bus during respective 480-volt emergency bus outage.

SAFETY EVALUATION SUMMARY

Technical Specification requirements for electrical power systems and equipment will be met for Mode 5 and 6 operations for the for the duration of this evolution. Adequate controls are provided to ensure proper electrical separation and equipment alignment prior to entering Mode 4. Loading and fault protection of electrical bus providing temporary power during evolution is acceptable and adequate.

SAFETY EVALUATION NUMBER 92-SE-OT-035

DESCRIPTION

Various changes to UFSAR Sections 9.21, 9.2.5, and Tables 9.2-1 through 9.2.4 based on revised SW Design Basis Document, various SW LERs, and actual system operation.

SAFETY EVALUATION SUMMARY

No unreviewed safety question exists because the UFSAR changes to to Section 9.2 are necessary to reflect Tech Spec requirements for Service Water system throttling and flow balancing. Additional clarifications were added to indicate actual Service Water system performance and operation. System flow described in the UFSAR are typical and don't reflect dynamic changes with system alignments. The change is required to reflect the complexity of the Service Water system and large number of possible system configurations.

SAFETY EVALUATION NUMBER 92-SE-OT-036

DESCRIPTION

Reload of Unit 2 for Cycle 9 operation in Modes 5 and 6 prior to completion of Safety Evaluation for all operational modes (Modes 1-6).

SAFETY EVALUATION SUMMARY

Technical Report NE-884 Revision 0 presents a discussion of the analyses and evaluation supporting the conclusion that the Cycle 9 reload core can be safely operated in Modes 5 and 6. Parameters applicable to the safety analyses for Modes 5 and 6 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. Operation of the reload core in Modes 5 and 6 will not violate the design basis of plant safety equipment. Therefore, the probabilities and consequences of analyzed accidents and equipment malfunctions are not changed by the reload. No unreviewed safety question is created by operation of the Cycle 9 reload core in Modes 5 or 6.

SAFETY EVALUATION NUMBER 92-SE-OT-037

DESCRIPTION

High Head Safety Injection suction from the RWST check valve will be verified to close on a slightly elevated downstream Primary Grade water pressure.

SAFETY EVALUATION SUMMARY

The activity will introduce a certain amount of dilute water into the RWST. A "cut-off" amount of PG that can be introduced into the RWST was determined. PG pressure limits were also determined to ensure piping would not be overstressed. RHR flow will be required to be greater than 3000 gpm if the test is performed in Mode 5. Shutdown margin will be maintained.

SAFETY EVALUATION NUMBER 92-SE-OT-038

DESCRIPTION

Changing the fire barrier inspection frequency from 18 months to 5 years to allow for a more detailed inspection of penetration seals. Currently 100% of the fire barriers are inspected every 18 months. The revision calls for 20% of the barriers to be inspected every 5 years.

SAFETY EVALUATION SUMMARY

Penetration seals will continue to be inspected following initial installation, and following maintenance. Penetration seal material does not change quickly, so there is no need to inspect the seals every 18 months. The revision is consistent with the basis of the UFSAR.

SAFETY EVALUATION NUMBER 92-SE-OT-039

DESCRIPTION

Tub-Lok bracing was added to reinforce the temporary shielding that currently exists around the letdown radiation monitors. The safety evaluation evaluates the adverse consequences of operation of safety related equipment within the collapse envelope of the temporary shielding enclosure.

SAFETY EVALUATION SUMMARY

The consequences of failure, due to seismic events are mitigated by the presence of the temporary bracing.

SAFETY EVALUATION NUMBER 92-SE-OT-040

DESCRIPTION

SW pump and discharge check valve head curve periodic tests will throttle flows with redundant pump in pull-to-lock.

SAFETY EVALUATION SUMMARY

The test should be allowed because the impact of testing on CC supply temperature should be minimal. The SW system will be in a 72 hour LCO during the test due to loss of single failure criteria. SW system throttling when one pump is in PTL minimizes the consequences of a pump failure if a CDA were to occur during the test. SW system is capable of delivering required CDA flows to either U1 or U2 during all portions of the tests.

SAFETY EVALUATION NUMBER 92-SE-OT-041

DESCRIPTION

The high volume blowdown system that was originally designed to be in parallel with the low volume blowdown system will be placed back into service by Design Change Package (DCP) 92-157. The high volume system was previously abandoned in place and no procedures currently exist for this system. Operations Procedure 2-OP-32.3 is being written to control the operation and use of the system.

SAFETY EVALUATION SUMMARY

The use and operation of the high volume blowdown system does not affect the safety of the plant since it was designed and built in accordance with all of the necessary code requirements. The plant will operated under existing secondary side chemistry requirements, which limit temperature and power levels if certain levels of water chemistry are not maintained. Radiation Protection and Chemistry will develop an adequate sampling program to ensure that unmonitored releases will not occur from the turbine building sump. OP-32.2 requires that the turbine building sump pumps not be placed in automatic while the high-capacity blowdown system is in service. Therefore, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-OT-042

DESCRIPTION

The reload safety evaluation for North Anna 2 Cycle 9 operation.

SAFETY EVALUATION SUMMARY

A safety evaluation has been performed to determine whether an unreviewed safety question will result from the refueling and operation of North Anna 2 Cycle 9. In this evaluation parameters for the reload have been calculated and compared to the existing safety analysis assumptions. These parameters have been shown to be either 1) explicitly bounded, or 2) accommodated by existing safety analysis margin and/or conservatism.

SAFETY EVALUATION NUMBER 92-SE-OT-043

DESCRIPTION

To address the safety impact of continued operation of NAPS Unit 2 with a potentially mobile foreign object remaining in the secondary side of "B" Steam Generator.

SAFETY EVALUATION SUMMARY

This evaluation addresses the potential safety impact of continued operation of NAPS Unit 2 with a potentially mobile foreign object in the secondary side of the "B" Steam Generator. An evaluation was performed to assess the tube wear during cycle 9 operation as a result of this object (a two-inch piece of wire). Analysis results indicate no adverse tube degradation for the duration of cycle 9. Since tube wear is negligible, tube rupture analysis remains bounding, and the probability and consequences of any accidents previously evaluated is unchanged. No different accident scenario is created.

SAFETY EVALUATION NUMBER 92-SE-OT-044

DESCRIPTION

The purpose of this evaluation is to address the integrity of 2-RC-MOV-2593 after experiencing excessive thrust into its closed seat.

SAFETY EVALUATION SUMMARY

Westinghouse Electric Corporation has stated that any valve damage resulting from excessive thrust at the closed seat would be evident in a bent stem. Since an external examination of the stem with the valve open indicates that the stem is not damaged, and the fact that the valve can be moved freely manually, the vendor has stated that no internal damage to the valve components is expected.

SAFETY EVALUATION NUMBER 92-SE-OT-045

DESCRIPTION

The Q-List change request is to downgrade the containment vacuum pump motors from SR to NSQ.

SAFETY EVALUATION SUMMARY

Presently the motors for the containment vacuum pumps are classified SR in the Q-List. The UFSAR (Section 6.2.6) states that the vacuum pumps are required to maintain containment vacuum during normal operations and are not required during a design basis accident nor are they considered ESF equipment. The suction valves go closed on a Phase A signal which causes the pumps to trip. The motor has its power supplied from SR bus to ensure a reliable power supply since the system is required to comply with Tech Specs for containment pressure.

SAFETY EVALUATION NUMBER 92-SE-OT-046

DESCRIPTION

This evaluation is being performed on the 1992 interim update to the North Anna Power Station 10CFR50 Appendix R Report. This interim update adds annotations to Chapter 7 to simplify usage, and incorporates a new Chapter 12 into the report.

SAFETY EVALUATION SUMMARY

The Appendix R Report update is a document update only. The report serves as a mechanism to show compliance with 10CFR50 Appendix R. This update does not create any condition not previously analyzed, because it is simply documenting existing commitments, and is consistent with the information in the current UFSAR. There is no impact on unreviewed safety questions.

SAFETY EVALUATION NUMBER 92-SE-OT-049

DESCRIPTION

The purpose of this change is to satisfy the requirement to annually update the QA Topical Report.

SAFETY EVALUATION SUMMARY

The changes to the Operational Quality Assurance Program Topical Report have been reviewed with respect to the criteria defined in 10CFR50.59. The changes to the Topical Report do not reflect or affect changes in the facility as described in the UFSAR or propose the conduct of tests or experiments not described in the UFSAR. The changes do reflect changes in the standards (procedures) and the organization implementing these standards which may be referenced in the UFSAR.

SAFETY EVALUATION NUMBER 92-SE-OT-050

DESCRIPTION

The Tech Specs require that if an EDG becomes inoperable for any reason other than preplanned maintenance, surveillance 4.8.1.1.2.a.4 (slow start PT) must be performed within 24 hours. It is not desirable to run the EDG if inspection can assure that no common mode failure exists.

SAFETY EVALUATION SUMMARY

The original tech spec change documentation associated with T. S. 3.8.1.1 included the statement referred to in section 6 to assure that a failure of an EDG was not the result of some component degradation or design flaw which could be present in the other EDGs. Many times this can be determined more effectively by inspection of the other EDGs rather than simple engine operation. In this case, inspection rather than engine operation provides more effective means of preventing common mode failures and saves further wear and tear of the unaffected EDGs by reducing the amount of run time on each. Furthermore, operators are not distracted from their primary duty of monitoring the reactor core while one EDG is in a degraded condition to test the only remaining EDG. These actions are conservative in nature and meet the intent of T. S. 3.8.1.1.

SAFETY EVALUATION NUMBER 92-SE-OT-051

DESCRIPTION

The 1H EDG cooling fan was found to have damaged blading. Replacement blading has not been obtained. This SE evaluates operation of the EDG with damaged or rearranged cooling fan blading.

SAFETY EVALUATION SUMMARY

The 1H EDG was discovered to have damaged blading on its cooling fan. Replacement blading was not available to support continued plant operations. Engineering has reviewed operation of the EDG with each damaged fan blade ground and polished to remove all indicated cracks. This evaluation has determined that the structural integrity and air flow characteristics of each fan blade will meet all requirements for design loading of the diesel since less than 1% of the cross-sectional area of the fan blade has been removed. In addition, this small reduction of the cross-sectional area will not result in a reduction of cooling air delivered by the fan.

SAFETY EVALUATION NUMBER 92-SE-OT-052

DESCRIPTION

Evaluation of effects of locked rotor loss coefficient on the retained DNBR margin available for the locked rotor event. Evaluation also assessed changes made to the computer code input assumptions for the event.

SAFETY EVALUATION SUMMARY

The analysis confirmed that the 13% fuel failure assumption of the offsite dose limit will continue to be met, and the locked rotor accident analysis limits continue to be met.

SAFETY EVALUATION NUMBER 92-SE-OT-053

DESCRIPTION

A new Chemistry Procedure, CH-32.930 - Service Water System: Poly Z Chemical Addition from 2-SW-TK-6, will be used to control the addition of Calgon PoL-E-Z-7736 to the Service Water Reservoir.

SAFETY EVALUATION SUMMARY

This new Chemistry Procedure CH-32.930, Service Water System: Poly Z Chemical Addition from 2-SW-TK-6, will be used to control the addition of Calgon PoL-E-Z-7736 to the Service Water Reservoir. The UFSAR needs to be changed to reflect the use of POLY-Z and the Poly-Z System. Performance characteristics of the Service Water System will not be altered. The polymer only affects suspended solids in the reservoir. There are no Tech Specs associated with SW System Chemistry.

SAFETY EVALUATION NUMBER 92-SE-OT-054

DESCRIPTION

CH-HCV-2200C has experienced a spurious closure several times. A special troubleshooting procedure has been developed by the Instrument Department to aid in finding the cause.

SAFETY EVALUATION SUMMARY

Automatic isolation of pressurizer via CH-LCV-2460B will not be possible during the time of this activity and CH-HCV-2200A, B, and C would only receive an automatic letdown isolation signal from LC-460.

Redundant alarms and controls will be available from LC-459. LC-459 would provide an automatic letdown isolation to CH-LCV-2460A and to CH-HCV-2200A, B, and C in the event of an actual low pressurizer level. The SI closure signal to CH-HCV-2200A, B, and C is not affected in any way.

SAFETY EVALUATION NUMBER 92-SE-OT-055

DESCRIPTION

The purpose of this Safety Evaluation is to evaluate the adverse consequences of adding approximately 60 lbs of lead blanket shielding around an elbow of line 2"-CH-575-153A-Q2, which contains a 'hot spot.' Seismic considerations, for the line and associated supports, as well as other Safety-Related equipment in the collapse envelope of this temporary shielding request will be evaluated for any adverse impacts.

SAFETY EVALUATION SUMMARY

The major issue associated with this Safety Evaluation is the concern for the seismic integrity of the existing equipment located within the collapse envelope of the temporary shielding site. The evaluation indicated that the lead blanket shielding would not overstress the charging line nor its associated supports.

SAFETY EVALUATION NUMBER 92-SE-OT-056

DESCRIPTION

The procedures for verifying setpoints on the Loss of Reserve Station Service Undervoltage protective relaying were revised to install jumpers in place of the removed relays. The jumpers will simulate the removed relays as being in their tripped condition (i. e., half of the coincidence for the Loss of Reserve Station Service will be made up). The jumpers will allow the Loss of Reserve Station Service feature to remain operable.

SAFETY EVALUATION SUMMARY

The new procedures provide instructions for installation of a jumper in place of any of the Reserve Station Service undervoltage relays removed for testing/calibration. Installation of the jumpers allows the auto start feature of the AFW pumps and SW pumps on station blackout to remain operable.

SAFETY EVALUATION NUMBER 92-SE-OT-059

DESCRIPTION

Operation of the Circulating Water pumps with the water box key lock switches in defeat.

SAFETY EVALUATION SUMMARY

The interlock trips a running CW pump if its corresponding waterbox inlet or outlet MOV is not full open. The units are experiencing occasional inlet and outlet MOV drift. The concern is the unnecessary tripping of a CW pump due to a drifting waterbox MOV. Tripping of a CW pump would cause a Unit perturbation/transient. Placing the drifting MOV's switch in the "defeat" position would prevent unnecessary pump trips and subsequent Unit perturbations.

SAFETY EVALUATION NUMBER 92-SE-OT-061

DESCRIPTION

Special instructions have been added to the referenced procedures to vent the charging pump normal suction header to the gas strippers. These instructions constitute the installation, use, and removal of a jumper.

SAFETY EVALUATION SUMMARY

The jumper created by each of the referenced procedures allows the charging pump normal suction header to be vented into the gas strippers in a safe, controlled manner that is in accordance with standard radiological practices. The vented gas and liquid will then be processed through the waste disposal system in the normal manner. No part of the operation of the gas strippers, liquid or gaseous waste, or the CVCS pumps is affected by this jumper. Proper installation and removal of the jumper is accomplished by the use of independent verification.

SAFETY EVALUATION NUMBER 92-SE-OT-062

DESCRIPTION

This safety evaluation ensures that no unreviewed safety questions exist in the compensatory measures implemented in response to NRC Bulletin 92-01, "Failure of Thermo-Lag 330 Fire Barrier to Maintain Cable Trays and Small Conduit Free from Fire Damage."

SAFETY EVALUATION SUMMARY

The NRC recently issued a Bulletin (92-01) which has determined that the Thermo-Lag fire barrier wrap currently installed on wide cable trays and small conduits at the station does not provide adequate fire protection as required by Appendix R. As a result of the bulletin, the station has had to implement compensatory actions for inoperable fire barriers. These actions are documented in Standing Orders 193 and 194. These actions are consistent with Administrative Procedure 16.2. Engineering has concurred with these compensatory actions taken and they are working on a suitable long term fix to address the bulletin's concerns.

SAFETY EVALUATION NUMBER 92-SE-OT-065

DESCRIPTION

This safety evaluation considers a new procedure which will either jumper out or replace bad cells in station battery 2-BY-B-IV.

SAFETY EVALUATION SUMMARY

Performance of this procedure will be in the event the 2-IV battery has one or more cells below acceptable specific gravities during its PT. The as left condition of the battery will be in accordance with a JCO based on the reference calculation (S&W Calculation 02072.2310) which will ensure that the battery will function as required by the Tech Specs.

SAFETY EVALUATION NUMBER 92-SE-OT-066

DESCRIPTION

The SW lines to Unit 1 Quench Spry (QS) Building which are buried and embedded in concrete require repair/replacement since they are deteriorated due to pitting corrosion.

SAFETY EVALUATION SUMMARY

The repair/replacement is planned to be carried out during the prolonged Unit 1 outage associated with Steam Generator replacement. Unit 2 may be in any mode of operation. This SE assumes that Unit 2 is in mode 1. This Design Change will be implemented within the existing TS. The basic SW system configuration is not altered.

SAFETY EVALUATION NUMBER 92-SE-OT-066, Rev. 1

DESCRIPTION

The SW lines to Unit 1 Quench Spry (QS) Building which are buried and embedded in concrete require repair/replacement since they are deteriorated due to pitting corrosion.

SAFETY EVALUATION SUMMARY

The repair/replacement is planned to be carried out during the prolonged Unit 1 outage associated with Steam Generator replacement. Unit 2 may be in any mode of operation. This SE assumes that Unit 2 is in mode 1. This Design Change will be implemented within the existing TS. The basic SW system configuration is not altered.

SAFETY EVALUATION NUMBER 92-SE-OT-066, Rev. 2

DESCRIPTION

The SW lines to Unit 1 Quench Spry (QS) Building which are buried and embedded in concrete require repair/replacement since they are deteriorated due to pitting corrosion.

SAFETY EVALUATION SUMMARY

The repair/replacement is planned to be carried out during the prolonged Unit 1 outage associated with Steam Generator replacement. Unit 2 may be in any mode of operation. This SE assumes that Unit 2 is in mode 1. This Design Change will be implemented within the existing TS. The basic SW system configuration is not altered.

SAFETY EVALUATION NUMBER 92-SE-OT-066, Rev. 3

DESCRIPTION

The SW lines to Unit 1 Quench Spry (QS) Building which are buried and embedded in concrete require repair/replacement since they are deteriorated due to pitting corrosion.

SAFETY EVALUATION SUMMARY

The repair/replacement is planned to be carried out during the prolonged Unit 1 outage associated with Steam Generator replacement. Unit 2 may be in any mode of operation. This SE assumes that Unit 2 is in mode 1. This Design Change will be implemented within the existing TS. The basic SW system configuration is not altered.

SAFETY EVALUATION NUMBER 92-SE-OT-067

DESCRIPTION

The purpose of this change is to supply the Unit 1 Control Room chillers with cooling water while the SW headers normally supplying cooling water are repaired. During repair of the headers, Unit 1 Control Room Chillers will be left without a supply of SW. During unavailability of the SW, a temporary supply of Bearing Cooling Water will be supplied from the Unit 1 Bearing Cooling Water Crossconnect.

SAFETY EVALUATION SUMMARY

This temporary modification does not introduce any unreviewed safety questions. A temporary supply of Bearing Cooling Water to Unit 1 Control Room Chillers will be provided while Unit 1 is in a prolonged refueling outage which will coincide with the steam generator replacement. Existing Technical Specifications do not require operation of the Unit 1 Control Room Chillers when Unit 1 is in mode 5 or 6.

SAFETY EVALUATION NUMBER 92-SE-OT-067, Rev. 1

DESCRIPTION

The purpose of this change is to supply the Unit 1 Control Room chillers with cooling water while the SW headers normally supplying cooling water are repaired. During repair of the headers, Unit 1 Control Room Chillers will be left without a supply of SW. During unavailability of the SW, a temporary supply of Bearing Cooling Water will be supplied from the Unit 1 Bearing Cooling Water Crossconnect.

SAFETY EVALUATION SUMMARY

This temporary modification does not introduce any unreviewed safety questions. A temporary supply of Bearing Cooling Water to Unit 1 Control Room Chillers will be provided while Unit 1 is in a prolonged refueling outage which will coincide with the steam generator replacement. Existing Technical Specifications do not require operation of the Unit 1 Control Room Chillers when Unit 1 is in mode 5 or 6.

SAFETY EVALUATION NUMBER 92-SE-OT-068

DESCRIPTION

This evaluation is being performed to assess the 1992 update of the North Anna Station Appendix R Report. It incorporates Design Change Packages (DCP) completed in 1991 through May 1992, and information concerning other station changes as they pertain to Appendix R, thereby incorporating modifications to the plant which impact the Appendix R program and updates the program to reflect current plant configurations. Various Engineering Evaluations were added to address commitments to Appendix R.

SAFETY EVALUATION SUMMARY

This update does not create any condition not previously analyzed because it is simply documenting commitments and is consistent with information in the current UFSAR. Therefore, there is no unreviewed safety question.

SAFETY EVALUATION NUMBER 92-SE-OT-070

DESCRIPTION

Operation of the unit without the equipment supplied by bus 1G1-1N and 1G1-1S. Power was removed from these busses due to a fire in the Motor Control Center (MCC).

SAFETY EVALUATION SUMMARY

Power to the Circulating Water (CW) pump discharge Motor Operated Valves (MOV) has been lost preventing automatic operation of these valves and preventing the operator from manually tripping the CW pumps from the Main Control Room (MCR). This affects the turbine building flooding circuitry since this circuitry sends a signal to the MOV's to close and the CW pumps to trip in the event of turbine flooding. While the valves will not respond to this signal, the signal to the pumps is not affected, and they should trip in the event of a flooding incident. Additionally, there are sump level alarms to alert the operator of an impending turbine building flooding problem, allowing him time to trip the pumps by opening the G bus supply breaker if the pumps do not trip automatically. No other automatic pump trips are affected.

SAFETY EVALUATION NUMBER 92-SE-OT-071

DESCRIPTION

Operation without the "automatic" function of steam traps due to the isolation of five steam traps upstream of 1-MS-TV-109. These traps will be isolated until pipe repair is made to the trap discharge header upstream of 1-MS-TV-109.

SAFETY EVALUATION SUMMARY

Operation of the Main Steam System and the Turbine-driven Aux. Feedwater pump will not be altered by the steam trap isolations. The traps will be blown down by Operations personnel at a frequency determined by Station Engineering to prevent adverse effects on any Main Steam piping. Removal of water from the Main Steam lines, whether by steam trap operation or manual blowdown of the steam trap lines will reduce the chance of erosion/impingement of the steam lines and turbine.

SAFETY EVALUATION NUMBER 92-SE-OT-071 Rev. 1

DESCRIPTION

Operation without the "automatic" function of steam traps due to the isolation of five steam traps upstream of 1-MS-TV-109. These traps will be isolated until pipe repair is made to the trap discharge header upstream of 1-MS-TV-109.

SAFETY EVALUATION SUMMARY

Operation of the Main Steam System and the Turbine-driven Aux. Feedwater pump will not be altered by the steam trap isolations. The traps will be blown down by Operations personnel at a frequency determined by Station Engineering to prevent adverse effects on any Main Steam piping. Removal of water from the Main Steam lines, whether by steam trap operation or manual blowdown of the steam trap lines will reduce the chance of erosion/impingement of the steam lines and turbine.

SAFETY EVALUATION NUMBER 92-SE-OT-071 Rev. 2

DESCRIPTION

Operation without the "automatic" function of steam traps due to the isolation of five steam traps upstream of 1-MS-TV-109. These traps will be isolated until pipe repair is made to the trap discharge header upstream of 1-MS-TV-109.

SAFETY EVALUATION SUMMARY

Operation of the Main Steam System and the Turbine-driven Aux. Feedwater pump will not be altered by the steam trap isolations. The traps will be blown down by Operations personnel at a frequency determined by Station Engineering to prevent adverse effects on any Main Steam piping. Removal of water from the Main Steam lines, whether by steam trap operation or manual blowdown of the steam trap lines will reduce the chance of erosion/impingement of the steam lines and turbine.

SAFETY EVALUATION NUMBER 92-SE-OT-072

DESCRIPTION

The repair involves installation of an engineered enclosure over an elbow on line 3"-SHPD-5-601-Q3 which has a pin hole in one location and wall thinning in another location. The enclosure will serve as a temporary repair until permanent repairs can be performed.

SAFETY EVALUATION SUMMARY

Although this repair is not a code repair and requires NRC approval, it meets the design temperature and pressure limits for the pipe. In addition all materials used will be Safety Related. A seismic analysis (calculation CE-0956) of the installation of the enclosure on the line has concluded that it is acceptable.

SAFETY EVALUATION NUMBER 92-SE-OT-074

DESCRIPTION

1-OP-52.1 , "Domestic Water System", is being revised to remove references to hypochlorite treatment since this part of the system no longer exists. The use of hypochlorite for treatment of the Domestic Water System has been discontinued and the hardware for hypochlorite treatment has been removed.

SAFETY EVALUATION SUMMARY

FSAR Section 9.2.3.1 states that the Domestic Water system includes a chlorination capability, which has been removed. The current system meets our Domestic Water requirements, including water purity, without the use of a chlorination system. The OP is being revised to delete any operational references to this portion of the system.

SAFETY EVALUATION NUMBER 92-SE-OT-076

DESCRIPTION

This safety evaluation considered Technical Specification (TS) compliance and 10CFR50GDC compliance while performing Maintenance Operating Procedure (MOP) 0-MOP-49.12 which cross-ties the two Service Water (SW) headers at their respective supplies and returns. Operation of the SW system in this mode is not addressed by the UFSAR. Cross-tieing is done to ensure that state-approved biocide or other water treatment chemicals are delivered to low flow and stagnant portions of the SW system.

SAFETY EVALUATION SUMMARY

The cross-ties are enabled by installing jumpers on the supply and return isolation valve controls so that the valves can be opened independent of the position switch for the CARF coolers. These jumpers only affect the interlocks to the CARF cooler isolation valves. Automatic closure of these valves on a Containment Depressurization Actuation (CDA) is not affected. The addition of extra cross-ties in the supply and return headers will not adversely affect the ability of the SW system to provide required flows to the RSHX's during a DBA.

SAFETY EVALUATION NUMBER 92-SE-OT-077

DESCRIPTION

Provide temporary power to selected loads from opposite 480V emergency bus during respective 480V emergency bus outage. Certain essential 480V loads are desired to remain energized while the respective 480V emergency bus is deenergized for maintenance.

SAFETY EVALUATION SUMMARY

Technical Specification requirements for electrical power systems and equipment will be met for Mode 5 and 6 operation for the duration of this evolution. Adequate controls are provided to ensure proper electrical separation and equipment alignment prior to entering Mode 4. Loading and fault protection of the electrical bus providing temporary power during this evolution is acceptable and adequate.

SAFETY EVALUATION NUMBER 92-SE-OT-078

DESCRIPTION

A new procedure has been written to written to provide guidance for coping with a primary system LOCA occurring at shutdown conditions (Modes 4, 5, and 6) with the refueling cavity not flooded..

SAFETY EVALUATION SUMMARY

The procedure is based for the most part on ARG-2 which is applicable in Mode 3 following SI accumulator isolation and in Mode 4. For North Anna the operator will be expected to use E-0 for Mode 3 and above for LOCA's initiating SI if necessary. Also steps in the procedure are provided for LOCA's occurring in Modes 5 and 6 with the refueling cavity not flooded. These steps are based on guidance found in AP-11, "Loss of RHR."

SAFETY EVALUATION NUMBER 92-SE-OT-079

DESCRIPTION

Change to Quench Spray (QS) pump suction motor-operated valves (MOV) differential pressure test which consists of instrumenting the MOV's with VOTES test equipment and fully stroking the valves to acquire performance data.

SAFETY EVALUATION SUMMARY

This test will be performed during modes 5 or 6. Should a failure occur during this test, the failed component will be repaired prior to coming out of mode 5. Therefore, the operability of the QS system as defined in the UFSAR and required by Technical Specifications will not be affected.

SAFETY EVALUATION NUMBER 92-SE-OT-080

DESCRIPTION

A stem blocking device (Com-A-Long) will be installed around 01-MS-TV-1A to ensure that the valve will not come off its close seat during a unit trip if another TV fails to close. The purpose of the stem blocking device is to ensure the TV remains shut during a unit trip with another TV stuck open.

SAFETY EVALUATION SUMMARY

The stem on the main turbine #1 throttle valve failed causing the valve to close. Since the stem will be replaced with the unit on line there will be a finite amount of time that the spring will be detensioned at which time the system pressure may open the valve. There is also concern that the valve may open should the unit trip and another TV fail to close while the spring is detensioned. This would pose a safety hazard to personnel working on or around the valve. A Com-A-Long was installed around the linkage for the affected valve which will ensure that it remains closed. A calculation (System Engineering Calc 0021) was performed to verify that the Com-A-Long would be adequate to ensure the valve remains closed on a unit trip with failure of another TV to close.

SAFETY EVALUATION NUMBER 92-SE-OT-081

DESCRIPTION

Removal of water which is collecting in the steam supply lines to the turbine driven AFW pumps.

SAFETY EVALUATION SUMMARY

Water accumulation in the steam supply lines to the AFW pumps causes the pump response times to increase. The SE is for a new procedure for draining the lines. TS Action will be entered when the test is performed.

SAFETY EVALUATION NUMBER 92-SE-OT-082

DESCRIPTION

Determine the effects on turbine missile generation due to suspension of turbine turbine governor valve testing during the Unit 1 (135 day) power coastdown.

SAFETY EVALUATION SUMMARY

Suspension of testing of the governor valves during the coastdown period does not present an unreviewed safety question, and will not involve a change to plant TS.

SAFETY EVALUATION NUMBER 92-SE-OT-083 (Rev 1)

DESCRIPTION

Suspension of turbine valve freedom testing for the Unit 1 turbine throttle valves during coastdown. Jumpering out the closed position limit switch for TV-1A in the TV test circuit to allow testing of the remaining two throttle valves. The TV-1A could not be throttled because the valve stem had failed. Suspending the TVFT will permit repair while shutdown rather than at power.

SAFETY EVALUATION SUMMARY

Probabilistic analysis has shown that the frequency of turbine missile ejection remains unchanged.

SAFETY EVALUATION NUMBER 92-SE-OT-084

DESCRIPTION

Close manual valve isolating the boric acid supply to the blender. Primary Grade (PG) water is leaking back through a check valve and diluting a Boric Acid Storage Tank (BAST). By closing the manual isolation and isolating the leaking valve, dilution can be minimized.

SAFETY EVALUATION SUMMARY

Makeups are now only PG since the unit is at the End of Life coastdown, therefore the boric acid supply flow control valve is not opened when making up to the Reactor Coolant System (RCS). An operator aid will be placed on the control board as a reminder of the manual PG isolation and special requirements for returning the flowpath to normal. The boric acid flowpath to the blender and the manual emergency borate valve will remain available and can be placed in service. The Technical Specification required boration flowpath will be the emergency borate MOV and as described in the UFSAR, it will be demonstrated operable prior to closing the manual isolation.

SAFETY EVALUATION NUMBER 92-SE-OT-085

DESCRIPTION

Temporarily suspend surveillance requirement for response time testing of AFW Pump Auto Start from all MFW Pumps Tripped for the remainder of the Unit 1 operating cycle. Previous response time testing of this specific circuitry was inadequate.

SAFETY EVALUATION SUMMARY

All of the auto start circuitry, with the exception of the MFW pumps tripped, have been response time and functionally tested. The MFW pumps tripped auto start has only been functionally tested. Response time testing for this auto start has not been adequately verified; however, a review of data from the last Reactor Trip/SI on Unit 1 in August of 1991 revealed that at least one of the trains of AFW Auto Start from MFW Pump Trip was within the required time limits. Other diverse AFW auto start signals exist which are fully operable that will ensure the system will function when required to maintain a heat sink from the SGs. No credit is taken for the AFW Auto Start from All MFW Pumps Tripped in the Accident Analyses.

SAFETY EVALUATION NUMBER 92-SE-OT-086

DESCRIPTION

A datalogger will be connected to devices in the Main Generator Voltage Regulator Drawer. The datalogger will provide real time data on control outputs of the voltage regulator to help identify the intermittent problem existing in the Voltage regulator.

SAFETY EVALUATION SUMMARY

The datalogger is designed to have a very high input impedence such that it will only monitor signals and not interact with the equipment being monitored. The emergency bus will not be connected to its alternate feed from the station service bus to ensure separation of emergency and station service busses and to ensure any interaction of the datalogger will not effect the emergency bus. Also, any problem is bounded by the Loss of External Electrical Load and/or Turbine trip.

SAFETY EVALUATION NUMBER 92-SE-OT-089

DESCRIPTION

This safety evaluation considers operation of the Component Cooling (CC) System as a contaminated system. CC was originally designed as a nonradioactive system but has become contaminated during the course of plant operation.

SAFETY EVALUATION SUMMARY

The UFSAR states that provisions are made to preclude the possible spread of radioactive contamination even though this system is not normally expected to contain radioactive water. CC is not used as a mitigating system for a Design Basis Accident (DBA). Also, it does not carry sufficient contamination to challenge Equipment Qualification of any related component and any potential credible release to the environment is below 10CFR20 and 10CFR190 limits. Leaks of CC would be handled by Liquid Waste which is designed for contamination. Lastly, CC is already monitored. Therefore, there is no increase in the probability of occurrence or in the consequences of accidents considered in the UFSAR and thus no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-OT-090

DESCRIPTION

Temporary lead blanket shielding is to be placed over various legs of the Reactor Coolant System (RCS) to reduce dose during the 1993 Unit 1 refueling outage and Steam Generator replacement. This evaluation studies the seismic stress effects of adding dead weight and possible falling on Safety Related equipment.

SAFETY EVALUATION SUMMARY

Analysis shows that with the loop stop valves closed and the loops drained the weight of the lead blankets does not impact the seismic analysis. Furthermore, the method of attaching the blankets to the piping is an approved method for seismically attaching. Therefore, the possibility of falling and striking Safety Related equipment is not increased. Therefore, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-OT-091

DESCRIPTION

Jumper out the pump/motor permissives of selected 4160V motors to allow uncoupled motor runs for post-maintenance testing.

SAFETY EVALUATION SUMMARY

Because there is no mechanical system response to an uncoupled pump run, there is no need for maintaining system interlocks. Electrical protection for the motor will be preserved. Therefore, there is no additional adverse electrical system response made possible. Thus, there is no increase in the probability of occurrence nor in the consequence of analyzed conditions and no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-OT-092

DESCRIPTION

Evaluate the operability of an emergency diesel generator if one of two fuel oil transfer pumps is removed from service.

SAFETY EVALUATION SUMMARY

Automatic actuations will start and stop the remaining pump the flow of which is sufficient to makeup the day tank while the diesel is running. Additionally, the regulatory guidance for fuel oil transfer is met by the remaining pump. Therefore, an unreviewed safety question does not exist.

SAFETY EVALUATION NUMBER 92-SE-OT-096

DESCRIPTION

Downgrade the Emergency Diesel Generator Room exhaust fan motors from safety related to nonsafety with special regulatory significance.

SAFETY EVALUATION SUMMARY

A review of licensing documentation reveals no safety related functions are performed by this component. Therefore, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-OT-097

DESCRIPTION

Differential pressure test the Auxiliary Feedwater (AFW) Pump discharge Motor Operated Valves while flowing the Steam Generators during Mode 5 or 6

SAFETY EVALUATION SUMMARY

Because the test will be performed in Mode 5 or 6, only one pump at a time, with sufficient Emergency Condensate Storage Tank volume, sufficient Steam Generator volume and vented to atmosphere, and because in Mode 5 or 6 the postulated accidents requiring AFW are not credible, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-OT-098

DESCRIPTION

Control the cooldown of Steam Generators (SG) using the Condensate system via a jumper to rapidly cool the SG's in preparation for their replacement.

SAFETY EVALUATION SUMMARY

The jumper will be installed and used only in Mode 5 or below. A low temperature cooldown of the SG's cannot add positive reactivity to the reactor core via a massive blowdown. Further, no safety related equipment is subject to possible flooding from jumper failure in these modes. Therefore, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-OT-099

DESCRIPTION

Increase plant cooldown by hand jacking open steam dump valves in Mode 3 or below.

SAFETY EVALUATION SUMMARY

Boration to cold shutdown is performed before going below 543 degrees Fahrenheit. Therefore, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-OT-100

DESCRIPTION

Pressurizer will not be completely filled during cooldown due to using auxiliary spray which enhances pressure control and cooldown.

SAFETY EVALUATION SUMMARY

Possibility for overpressure transient and thermal stress transient is reduced and boration to cold shutdown is performed before going below 543 degrees Fahrenheit. Therefore, no unreviewed safety question exists.

1992 50.59 SAFETY EVALUATIONS REPORTABLE TO THE NRC

PRIOR TO USE (PTU) PROCEDURE REVISIONS

92-SE-PTU-001
92-SE-PTU-002
92-SE-PTU-003
92-SE-PTU-004
92-SE-PTU-005
92-SE-PTU-006
92-SE-PTU-007
92-SE-PTU-008
92-SE-PTU-009
92-SE-PTU-010

SAFETY EVALUATION NUMBER 92-SE-PTU-001

DESCRIPTION

Adds instructions for verifying that 1-EE-EG-1H is capable of meeting Tech Spec requirements of 4.8.1.1 and for running 1-EE-EG-1H in isosynchronous mode on 1H bus.

SAFETY EVALUATION SUMMARY

Specific instructions written and incorporated into 1-PT-82.3A. These instructions control the administrative requirements necessary to verify that the diesel is operable

SAFETY EVALUATION NUMBER 92-SE-PTU-002

DESCRIPTION

Adds instructions for verifying that 1-EE-EG-1J is capable of meeting Tech Spec requirements of 4.8.1.1 and for running 1-EE-EG-1J in isosynchronous mode on 1J bus.

SAFETY EVALUATION SUMMARY

Specific instructions written and incorporated into 1-PT-82.3B. These instructions control the administrative requirements necessary to verify that the diesel is operable

SAFETY EVALUATION NUMBER 92-SE-PTU-003

DESCRIPTION

Add a jumper to ICP-P-1-L-115 to prevent the loss of degas mode while calibrating the VCT level channel 115A.

SAFETY EVALUATION SUMMARY

The jumper is a lifted lead that will prevent a loss of degas mode on high VCT level. Manual mode of both the VCT level and degas continue to function. All safety related systems are unaffected by the jumper. All other level controls and alarms on the VCT continue to be operable.

SAFETY EVALUATION NUMBER 92-SE-PTU-004

DESCRIPTION

Test 1-CH-277, recirc check valve on the C charging pump.

SAFETY EVALUATION SUMMARY

PG was used to test 1-CH-277 instead of the normal method of against charging pump back pressure. The unit was in an outage and it was not possible to start a charging pump at that time. The test will be used to satisfy ISI requirements on the check valve. A potential existed for a dilution of the RCS during this evolution. Cautions included this possibility and RCS boron samples were required following the activity.

SAFETY EVALUATION NUMBER 92-SE-PTU-005

DESCRIPTION

Test check valve 1-SI-47, High Head Safety Injection suction from the RWST with PG to verify closed.

SAFETY EVALUATION SUMMARY

Add PG to the back side of check valve 1-SI-47 to verify that the valve will properly seat. The test will be used to satisfy ISI requirements on the check valve. A potential existed for a dilution of the RCS during this evolution. Cautions included this possibility and RCS boron samples were required following the activity.

SAFETY EVALUATION NUMBER 92-SE-PTU-006

DESCRIPTION

Uncoupled run of 2-RCP-P-1B.

SAFETY EVALUATION SUMMARY

Run 2-RCP-P-1B uncoupled for without normal component cooling, without the normal vibration monitoring, and without the P-250 temperature monitoring points for upper thrust bearing and motor stator. The pump was not required to be operable during this mode. No safety related interlocks were adversely affected.

SAFETY EVALUATION NUMBER 92-SE-PTU-007

DESCRIPTION

Provides a procedure to collect Unit 2 Low Head Safety Injection (LHSI) Pump "B" discharge data for four controlled discharge header conditions: solid, pressurized, three cubic feet of air void, and six cubic feet of air void.

SAFETY EVALUATION SUMMARY

All conditions requiring LHSI system operation were considered in this evaluation. The procedure is changed to provide discharge header conditions which will provide pressure data to evaluate the actual system's pressure wave mechanics during the LHSI Pump start transient. The test will be conducted during Mode 5 or 6, the header will be isolated and returned to normal configuration at the test conclusion. Based on test limits and conditions, no unreviewed safety question exists.

SAFETY EVALUATION NUMBER 92-SE-PTU-008

DESCRIPTION

Hydro testing of 2-CH-255.

SAFETY EVALUATION SUMMARY

Hydro testing of 2-CH-255 would cause an expected dilution of the RCS with approximately 200 gallons of PG. The evaluation assumed a 450 gallon dilution would occur. RCS boron concentration was required to be verified after the test to ensure that shutdown margin was maintained.

SAFETY EVALUATION NUMBER 92-SE-PTU-009

DESCRIPTION

Fully open instrument air throttle valves to 1-MS-TV-111A and B and 2-MS-TV-211A and B.

SAFETY EVALUATION SUMMARY

Fully open the IA throttle valve to the Terry Turbine steam supply valves to allow a faster response time for the starting of the steam driven aux feed water pump. The valves are designed to be throttled and this is an acceptable method to control response time for the pump.

SAFETY EVALUATION NUMBER 92-SE-PTU-010

DESCRIPTION

Add sections to the procedure 1-MOP-10.90 for work on the Overhead Gas System.

SAFETY EVALUATION SUMMARY

The new procedure sections control removing the overhead gas system from service by purging the system to the Waste Gas Surge Drum and then to Vent Stack B. All radiological work practices to be followed and any release to the environment will be within allowable limits.

1992 50.59 SAFETY EVALUATIONS REPORTABLE TO THE NRC

SPECIAL TESTS

92-SE-ST-001 (2-ST-89)
92-SE-ST-002 (2-ST-93)
92-SE-ST-003 (2-ST-90)
92-SE-ST-004 (2-ST-91)
92-SE-ST-005 (0-ST-96)
91-SE-OT-010 (1-ST-98)
93-SE-ST-001 (1-ST-103)

SPECIAL TEST SUMMARY

CH MOV DELTA-P-TEST GL89-10

2-ST-89

DESCRIPTION

This Special Test was performed to verify that certain valves in the Charging System (2-CH-MOV-2286 A, B & C, 2-CH-MOV-2287 A, B & C AND 2-CH-MOV-2289 A & B) would open and shut with charging pump discharge pressure on the upstream side of the valves, and no pressure downstream of the valves.

The test was performed under the following conditions:

Unit 2 was in Mode 5 and 6.

Sufficient reactor cavity or letdown volume existed.

The Reactor Coolant System was not solid or in reduced inventory operation.

Volume control tank level >22% and let down was in operation or a refueling water storage tank suction was available.

Volume control tank pressure was 40 to 50 PSIG throughout the test when used as a suction source.

SAFETY ANALYSIS SUMMARY

The valves were operated in accordance with approved operating procedures, within design limits, and the UFSAR. The test was monitored by System Engineering and Operations. All valves operated within their expected parameters. An Unreviewed Safety Question does not exist because:

The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR was not increased.

The possibility for an accident or malfunction of a different type than any evaluated previously in the SAR was not created.

The margin of safety as defined in the basis for any Technical Specification was not reduced.

SPECIAL TEST SUMMARY

FW MOV 200 A & C DELTA-P-TEST GL89-10

2-ST-90

DESCRIPTION

This Special Test was performed to verify that certain valves in the Auxiliary Feedwater System (2-FW-MOV-200 A & C) would open and shut with Auxiliary Feed pump discharge pressure on the upstream side of the valves, and no pressure downstream of the valves.

The test was performed under the following conditions:

Unit 2 was in Mode 5 and 6.

The Steam Generator had adequate volume space to support the test.

Steam Generator ECST had at least 110,000 gallons at the beginning and completion of the test.

The Steam Generator was depressurized and vented prior to performing the test.

SAFETY ANALYSIS SUMMARY

The valves were operated in accordance with approved operating procedures, within design limits, and the UFSAR. The test was monitored by System Engineering and Operations. All valves operated within their expected parameters. An Unreviewed Safety Question does not exist because:

The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR was not increased.

The possibility for an accident or malfunction of a different type than any evaluated previously in the SAR was not created.

The margin of safety as defined in the basis for any Technical Specification was not reduced.

SPECIAL TEST SUMMARY

CH & SI MOV DELTA-P-TEST GL89-10

2-ST-91

DESCRIPTION

This Special Test was performed to verify that certain valves in the Charging System (2-CH-MOV-2275 A, B & C, 2-SI-MOV-2836, 2-SI-MOV-2867 A & B, and 2-SI-MOV- 2869 A & B) would open and shut with charging pump discharge pressure on the upstream side of the valves, and no pressure downstream of the valves.

The test was performed under the following conditions:

Unit 2 was in Mode 5 and 6.

The CVCS and SI Systems were aligned to recirculate the RWST water.

The CVCS and SI Systems were configured to deliver flow to the RCS via four designated pathways.

SAFETY ANALYSIS SUMMARY

The valves were operated in accordance with approved operating procedures, within design limits, and the UFSAR. The test was monitored by System Engineering and Operations. All valves operated within their expected parameters. An Unreviewed Safety Question does not exist because:

The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR was not increased.

The possibility for an accident or malfunction of a different type than any evaluated previously in the SAR was not created.

The margin of safety as defined in the basis for any Technical Specification was not reduced.

SPECIAL TEST SUMMARY

QS MOV DELTA-P-TEST GL89-10

2-ST-93

DESCRIPTION

This Special Test was performed to verify that certain valves in the Qunich Spray System (2-QS-MOV-200 A & B) would open and shut with quinch spray pump discharge pressure on the upstream side of the valves, and no pressure downstream of the valves.

The test was performed under the following conditions:

Unit 2 was in Mode 5 and 6.

The Refueling Water Storage Tank was full (within Tech Spec.).

The back pressure on the downstream side of the MOV's was relieved by draining to a floor drain.

SAFETY ANALYSIS SUMMARY

The valves were operated in accordance with approved operating procedures, within design limits, and the UFSAR. The test was monitored by System Engineering and Operations. All valves operated within their expected parameters. An Unreviewed Safety Question does not exist because:

The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR was not increased.

The possibility for an accident or malfunction of a different type than any evaluated previously in the SAR was not created.

The margin of safety as defined in the basis for any Technical Specification was not reduced.

SPECIAL TEST SUMMARY

NEW PHONE SYSTEM WITH NRC OPERATIONS CENTER

0-ST-96

DESCRIPTION

This Special Test tested the newly established phone lines and dedicated phones. The test confirmed acceptable quality voice communications between the Emergency Response Facilities (ERF) at North Anna Power Station (NAPS) and the Nuclear Regulatory Commission Operations Center (NRCOC). The test established communications with the NRCOC by the dedicated phones and evaluated the communication quality with all NAPS ERF locations concurrently using dedicated phones.

SAFETY ANALYSIS SUMMARY

The existing phone lines and existing dedicated phones were not affected by this test and remained operable at all times. The new system will be operated in parallel with the existing system. The new phone system and associated Special Test have no interface with safety related systems or components and does not impact the safety of the public. An unreviewed safety question does not exist because:

The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR was not increased.

The possibility for an accident or malfunction of a different type than any evaluated previously in the SAR was not created.

The margin of safety as defined in the basis for any Technical Specification was not reduced.

SPECIAL TEST SUMMARY

RSHX'S INLET & OUTLET MOV DELTA-P-TEST GL89-10

1-ST-98

DESCRIPTION

This Special Test was performed to verify that the Recirc Spray Heat Exchanger (RSHX) Isolation valves (inlet and outlet of the heat exchanger) would open and shut with recirc spray pump discharge pressure on the upstream side of the valves, and no pressure downstream of the valves.

The test was performed under the following conditions:

Unit 2 was in Mode 5 and 6.

Adequate Service Water flow to the opposite unit during CDA was ensured by requiring immediate isolation of Unit 1 in the event of a Unit 2 CDA.

SAFETY ANALYSIS SUMMARY

The valves were operated in accordance with approved operating procedures, within design limits, and the UFSAR. The test was monitored by System Engineering and Operations. All valves operated within their expected parameters. An Unreviewed Safety Question does not exist because:

The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR was not increased.

The possibility for an accident or malfunction of a different type than any evaluated previously in the SAR was not created.

The margin of safety as defined in the basis for any Technical Specification was not reduced.

SPECIAL TEST SUMMARY

850 MHZ IN-PLANT RADIO SYSTEM

1-ST-103

DESCRIPTION

MHZ In-Plant Radio System was replaced with an 850 MHZ system by DCP 91-14-3. The new system utilizes "Trunking" Technology. "Trunking" means that the repeaters are not independent, but shared by all users. This Special Test will verify that the new 850 MHZ Radio System (1) will not cause adverse effects to the operation of safety related plant equipment and (2) will provide improved coverage throughout the station.

Test personnel were located outside of the Control Room and Emergency Switchgear Room areas. These would be the approximate locations the remote radio system would provide for communications to the main Control Room and Auxiliary Shutdown panel. Radio transmissions were verified at predetermined locations to verify there was adequate reception and no interference existed. The test was run with Unit 1 in Shutdown/Refueling Mode. It was verified that coincident channels were not in a tripped condition prior to transmitting near any instrument racks.

SAFETY ANALYSIS SUMMARY

The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR was not increased.

The possibility for an accident or malfunction of a different type than any evaluated previously in the SAR was not created.

The margin of safety as defined in the basis for any Technical Specification was not reduced.

1992 50.59 SAFETY EVALUATIONS REPORTABLE TO THE NRC

MODIFICATIONS
(DESIGN CHANGE PACKAGES (DCP) AND ENGINEERING WORK REQUESTS (EWR))

DCP 84-107
DCP 86-02
DCP 86-03
DCP 86-15
DCP 87-08 (91-SE-MOD-060)
DCP 88-17
DCP 88-18
DCP 89-04A
DCP 89-28
DCP 90-04 (91-SE-MOD-037)
DCP 90-14 (92-SE-MOD-069)
DCP 91-001 (91-SE-MOD-049)
DCP 91-003 (92-SE-MOD-071)
DCP 91-016
DCP 91-017
DCP 91-100 (92-SE-MOD-075)
DCP 91-104 (91-SE-MOD-070)
DCP 91-113
DCP 91-117 (92-SE-MOD-015)
DCP 91-128 (91-SE-MOD-003)
DCP 91-142 (92-SE-MOD-073)
DCP 91-166 (91-SE-MOD-014)
DCP 91-167 (91-SE-MOD-014)
DCP 91-168 (90-SE-MOD-136)
DCP 91-205 (92-SE-MOD-009)
DCP 91-207 (92-SE-MOD-018)
DCP 92-006 (92-SE-MOD-010)
DCP 92-101 (92-SE-MOD-001)
DCP 92-102 (92-SE-MOD-006)
DCP 92-104 (92-SE-MOD-002)
DCP 92-108
DCP 92-110 (92-SE-MOD-004)
DCP 92-112 (92-SE-MOD-007)
DCP 92-121 (91-SE-OT-035, Rev 1)
DCP 92-127 (90-SE-MOD-114)
DCP 92-130 (92-SE-MOD-041)
DCP 92-140 (92-SE-MOD-016)
DCP 92-142 (92-SE-MOD-026)
DCP 92-148 (92-SE-MOD-029)
DCP 92-150 (92-SE-MOD-023, Rev 1)
DCP 92-151 (92-SE-MOD-021)
DCP 92-152 (92-SE-MOD-020)
DCP 92-158 (92-SE-MOD-022)
DCP 92-182 (92-SE-MOD-027)
DCP 92-198 (92-SE-MOD-032)
DCP 92-250 (92-SE-MOD-045)
DCP 92-252 (92-SE-MOD-046)
DCP 92-315 (92-SE-MOD-059)
EWR 85-254F (91-SE-MOD-064)
EWR 87-646B,C (90-SE-MOD-039)
EWR 88-087A, B (88-SE-MOD-032)
EWR 88-087C, D, F (88-SE-MOD-090)
EWR 88-248 (89-SE-MOD-065)
EWR 88-248D, E (90-SE-MOD-051)
EWR 88-258 (88-SE-MOD-080)
EWR 88-258A (92-SE-MOD-040)
EWR 88-264BQ (89-SE-MOD-100)
EWR 88-273A, C, D (91-SE-MOD-013)
EWR 88-273E, F (91-SE-MOD-013, R1)
EWR 88-308 ,A, B (90-SE-MOD-155)
EWR 88-317 (89-SE-MOD-147)
EWR 89-216A (89-SE-MOD-102)
EWR 89-216G (93-SE-MOD-010)
EWR 89-217 (89-SE-MOD-081)
EWR 89-268I (89-SE-MOD-083)
EWR 90-001, A-C, E (90-SE-MOD-008)
EWR 90-029, A (90-SE-MOD-015)
EWR 90-042, A-E, G-I (90-SE-MOD-064)
EWR 90-076 (90-SE-MOD-024)
EWR 90-121, A-C (90-SE-MOD-139)
EWR 90-123B (91-SE-MOD-033)
EWR 90-132, A (90-SE-MOD-068)
EWR 90-171A (91-SE-MOD-028)
EWR 90-177, A, B (90-SE-MOD-154)
EWR 90-197, A-D (90-SE-MOD-109)
EWR 90-197E (91-SE-MOD-058)

1992 50.59 SAFETY EVALUATIONS REPORTABLE TO THE NRC

MODIFICATIONS
(DESIGN CHANGE PACKAGES (DCP) AND ENGINEERING WORK REQUESTS (EWR))

EWR 90-204, A-C (91-SE-MOD-016)
EWR 90-264, A-C (90-SE-MOD-164)
EWR 90-267, A-C (90-SE-MOD-087)
EWR 90-267A-C (90-SE-MOD-100)
EWR 90-280, A-F (91-SE-MOD-077)
EWR 90-330A-C (90-SE-MOD-153)
EWR 90-335, A (90-SE-MOD-158)
EWR 90-357 (90-SE-MOD-128)
EWR 90-366 (91-SE-MOD-061)
EWR 90-374 (91-SE-MOD-018)
EWR 90-400, A (91-SE-MOD-008)
EWR 90-4C6 (91-SE-MOD-043)
EWR 91-030 (91-SE-MOD-015)
EWR 91-030A (91-SE-MOD-015, Rev 1)
EWR 91-069, A (91-SE-MOD-024)
EWR 91-090, A (91-SE-MOD-040)
EWR 91-112B (91-SE-MOD-053)
EWR 91-129, A (91-SE-MOD-044)
EWR 91-169 (91-SE-MOD-046)
EWR 92-038 (92-SE-MOD-052)
EWR 92-092 (92-SE-OT-094)
EWR 92-112 (91-SE-OT-035)
EWR 92-124

DC 84-107-3

Buried Service Water Piping Cathodic Protection
North Anna Units 1 and 2

DESCRIPTION

In order to preserve the integrity of sections in the buried Service Water System piping an impressed current cathodic protection system was installed. This system replaces the existing coal tar epoxy and galvanic anodes which are ineffective in the mitigation of corrosion.

The impressed current system acts to drive the carbon steel service water piping from being an anode (in relation to copper grounding and other nearby more noble metals) into a cathode, thereby stopping the corrosion process. The impressed current system is preferred over a galvanic system because it is capable of supplying the higher voltage and current necessary to overcome the soil resistivity, piping shorts to station ground, and the effects of adjacent buried structures.

To provide maximum flexibility in the system design and operation, this modification is divided into four subsystems; each containing anode beds, rectifiers and interconnecting cabling. Each subsystem protects a specific portion of the buried service water piping and is capable of separate adjustment through the dedicated rectifier. The four subsystems are described below:

Subsystem A: Four (4) 36" supply and return lines from the service water pump house to the service water tie-in vault.

Subsystem B: Two (2) 32 1/4" return lines from the service water tie-in vault to the service water valve house expansion joint pit.

Subsystem C: Four (4) 36" supply and return lines from the service water tie-in vault to the auxiliary and safeguards buildings.

Subsystem D: Two (2) 24" auxiliary supply lines from the auxiliary service water valve pit to a valve pit in the turbine building.

By using the above described subsystem approach, the effects of potential short circuits on the overall system effectiveness is minimized.

Buried Service Water Piping Cathodic Protection
North Anna Units 1 and 2

SUMMARY OF SAFETY ANALYSIS

The proposed modifications were reviewed to determine if an unreviewed safety question, as defined in 10 CFR 50.59, exists.

A. The implementation of this modification does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

There are several particular concerns, specifically addressed and reviewed in-depth as they presented the greatest potential impact in this regard:

1. The application of impressed current in the earth to mitigate Service Water piping corrosion may inadvertently accelerate corrosion of nearby unprotected piping, most notably, the diesel fuel oil lines and the fire water lines. To eliminate this concern, all piping that can be adversely affected by the impressed current was tested to assure that it is tied into the Cathodic Protection System. In cases where lines are discontinuous or otherwise isolated from ground, they will be bonded or jumpered into the system as appropriate.

2. The installation and operation of the two anode wells in the Service Water Reservoir dike was reviewed and determined not to affect the seismic integrity of the dike nor promote water seepage. The wells are to be installed outside of the dike's impervious liner.

3. This design change requires the installation of bonding jumpers on several sections of buried Fire Water piping. The jumpers will be installed across each mechanical coupling to assure electrical continuity of the pipeline. The process of exothermically welding the jumpers to the fire water line was reviewed and determined not to adversely affect the integrity of the piping.

Buried Service Water Piping Cathod c Protection
North Anna Units 1 and 2

SUMMARY OF SAFETY ANALYSIS (continued)

B. The implementation of this modification does not create a possibility for an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report.

In accordance with North Anna Power Station UFSAR Section 3.11.3, the buried Service Water System piping is protected through the use of insulating flanges and/or cathodic protection systems in accordance with NACE Recommended Practice RP-01-69. As modifications in this DCP are in keeping with RP-01-69, no new, unanalyzed scenarios will be introduced.

C. The implementation of this modification does not reduce the margin of safety as defined in the basis of any technical specifications.

The specific North Anna Technical Specifications that were reviewed for this design change include 3/4.7.4, 3/4.7.5, 3/4.7.12, 3/4.7.13, 3/4.7.14.1, 3/4.8.1, and 3/4.8.2.

The installation and operation of the Cathodic Protection System in no way affects the operability and maintenance requirements of the Service Water or associated systems.

There will be no adverse impact to the seismic requirements for the Service Water Reservoir (via the two anode wells in the crest of the dike), the limiting settlement for the Service Water Pump House (pipe 36"-WS-1-151-Q3), or any of the adjacent structures or piping which will be bonded to the new impressed current system.

DC 86-02-1 AND 86-03-2
CORE UPRATING
NORTH ANNA POWER STATION
UNITS 1 AND 2

STATEMENT OF THE PROBLEM

The North Anna reactors were originally designed for an initial licensed core power output of 2775 MWt. (NSSS rating of 2785 MWt). Each reactor, however, was expected to be capable of achieving an ultimate power level of 2900 MWt (NSSS Rating of 2910 MWt). Since the units were not operating at this stretch rating, the units were operating at less than maximum capacity. Increasing the unit capacity would also reduce generating costs ($/kw).

A Feasibility Study performed by Virginia Power, Westinghouse and Stone Webster concluded that a core uprating to 2893 MWt (NSSS rating of 2905 MWt) was possible without major modifications. An uprating to this level would increase the electrical generation of each unit by approximately 32 MWe.

IMPLEMENTED RESOLUTION

In order to increase the net electrical generation for North Anna by approximately 64 MWe, the licensed maximum core power was increased to 2893 MWt (NSSS rating of 2905 MWt). The uprating involved the following:

<u>NRC Review</u> - The NRC reviewed and approved Virginia Power's licensing submittal for the core uprating.

<u>Hardware Modifications</u> - The Unit 1 main feedwater regulating valve trim was replaced in EWR 83-021 in order to accommodate the higher feedwater flows. The Unit 2 trim was adequately sized and did require replacement. While no other hardware modifications were required to implement the uprating, the maximum core power was restricted to 2893 MWt because of the turbine-generator.

<u>RCS Chemistry Control</u> - Because of the higher fuel temperatures associated with the uprating, Westinghouse stressed that it is more important that the station comply with the specified chemistry requirements (including Li/B control).

<u>Implementation</u> - The core uprating was implemented in 1986 on both units. The implementation required a number of Technical Specification changes and numerous control, protection and alarm setpoint changes. The setpoint changes were made with the units close to full power operation. The units were then taken to the uprated power under the cognizance of a special test. The special test provided for the monitoring of plant performance after an incremental increase (every 1/2 %) in power. The type

of parameters that were observed during the special test included feedwater level stability and the discharge pressure for the feedwater and condensate pumps.

Unreviewed Safety Question - The implementation of the core uprating did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR. All accidents potentially affected by the uprate were either reanalyzed or shown to still be applicable for the core uprating. The consequences of analyzed accidents and events met all applicable station design basis criteria, including a revised DNB design basis. The use of the Westinghouse Improved Thermal Design Procedure (ITDP) for DNB analysis represented a change in the design basis for DNB. The reanalysis of DNB limited events confirmed that the revised design basis was met. Station equipment was reviewed to confirm satisfactory operation at the uprated conditions.

The implementation of the uprating did not create the possibility for an accident or malfunction of a different type than any evaluated previously in the UFSAR. The implementation of the uprating did not involve any hardware changes that could create a new accident scenario.

The implementation of the uprating did not reduce the margin of safety as defined in the basis of any Technical Specification. All accidents potentially affected by the uprate were either reanalyzed or shown to still be applicable for the core uprating. The consequences of analyzed accidents and events met all applicable station design basis criteria, including a revised DNB design basis. The use of the Westinghouse Improved Thermal Design Procedure (ITDP) for DNB analysis represented a change in the design basis for DNB. The reanalysis of DNB limited events confirmed that the revised design basis was met.

DC 86-15

Service Water Reservoir Improvements/
Fiberglass Spray System Demolition
North Anna / Units 1 & 2

DESCRIPTION

The Service Water system (SWS) at North Anna Power Station is a nuclear plant safety-related cooling system shared by Units 1 and 2. The system takes a suction from a 9.5 acre Service Water Reservoir (SWR) and circulates cooling water to the various heat exchanges serving both units. The heated water is then returned to the SWR were the heat is removed via the Spray System. Losses from drift and evaporation are repla ced using pumps located on the main lake. The system also has the capability of taking suction directly from the main lake and discharging to the main condenser discharge tunnel, thus bypassin the SWR. Either method can be used during plant operation. The SWR and the main lake, in conjunction with the SWS, form he ultimate heat sink for the plant. The system is required to function during design basis accident conditions for both saf unit shutdown and long-term accident recovery.

The previously corrosive nature of he Service Water at North Anna had resulted in many SWS problems, including degradation of the fiberglass Spray Array Support System. A replacement spray array and bypass system was installed after design Change 84-43-3, Service Water Reservoir Improvements/Final System Tie-In and Start-up, was implemented, the Fiberglass spray system was permanently isolated from the operating SWS.

Design Change 86-15-3 controlled the removal of abandonment of the Fiberglass spray system array and associated equipment. The 3" fiberglass riser piping, 2" spray arms and guy wire assemblies were removed from the SWR. The submerged spray headers, supports, and the concrete pedestals in the SWR were abandoned in place. The piping and pipe supports inside the pumphouse were abandoned in place, Abandoned instrumentation, cable and conduit, and valve were left as non-functional equipment in the Service Water Pump House. The screen wash piping was modified to remove a section of pipe and install caps to terminate the cross connect between the active screen wash supply header and the abandoned 24" SW return piping.

SUMMARY OF SAFETY ANALYSIS

This design change does not create an unreviewed safety question as defined in 10 CFR 50.59. The implementation of this modification does not increase the possibility of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR. This design change does not place any new equipment into operation. Only abandoned inplace non operating components are being removed under this design change.

The possibility for an accident or malfunction of a different type than any evaluated previously in the UFSAR isn't created. As stated, this design change only removes abandoned equipment and components and therefore cannot create any new or different accident possibilities. The margin of safety isn't reduced.

DC 87-008-2

Fuel Transfer System
North Anna / Unit 2

Description

The fuel transfer system is the equipment required to transport fuel assemblies between the Reactor Refueling Pool and the Spent Fuel Pool. It consists of the transfer tube, the conveyor car and the upenders.

The Conveyor Car is a horizontal structure with large wheels on each side that support the car and allow it to roll on rails within the transfer tube. The car, in turn, supports and moves the fuel assembly container between the two pools. The conveyor car is approximately 35 feet long, with the 15-foot section nearest the Spent Fuel Pool end used for carrying the fuel assembly container. A single drive chain tack welded to the bottom of the cart was used to move the cart back and forth inside the transfer tube. The chain was engaged by sprockets on the containment side which were driven through a roller chain by an air motor located underwater. The conveyor car drive system resembled a rack and pinion arrangement, the chain attached to the bottom of the conveyor car acting as the rack, and the mating sprockets functioning as the pinion.

North Anna Power Station had experienced a variety of breakdowns in the Fuel Transfer System. Breakdowns had occurred in the chain drive system, air motor, proximity switches and emergency pull-out cable. These repeated breakdowns were costly to the Station because they directly impacted the length of refueling outages. In addition, these repeated breakdowns increased radiation exposures to Station maintenance personnel.

A component that had frequently failed was the underwater air motor. Water in the air line had led to internal rusting and had resulted in motor failure. The underwater proximity switches were used to indicate the position of the transfer tube valve as well as sense the final position of the conveyor car. These switches had failed in the past and had come out of adjustment during refueling operations, negating some key interlocks required to prevent operator errors in handling fuel assemblies. The emergency pull cable consisted of a stationary cable between the shear pin located near the transfer tube and a stationary pulley located on the canal wall opposite the transfer tube. The cable was used to return the car to the reactor side if failure of the drive system occurred. On several occasions, the cable had become entangled with the conveyor car and caused delays in the refueling process.

This design change modified the Fuel Transfer System by replacing the underwater air motor and chain drive system with a cable drive

system. The air supply line to the reactor containment control panel (which powered the air motor) was cut off and capped. The cable drive system consists of two electric motor driven winch drums located on the operating floor above the reactor transfer canal. Both electric winches are energized to provide mutually opposing torque whenever movement is required and the brakes on both winches are released during carriage travel. The direction of travel is controlled by providing high torque to the motor in the direction of travel and lower counter torque to the opposite winch motor to maintain cable tension. The torque is varied on a wound rotor type motor by varying the resistance in the rotor circuit.

The underwater limit switches used to limit travel of the fuel transfer car were replaced with programmable limit switches that monitor the rotation of the winch. A new limit switch for the transfer tube valve was relocated above water: a spring loaded cable was mounted to the valve stem transmitting relative gate valve position to the limit switch. Two limit switches, one associated with each of the upender winches, located a short distance below the water surface were replaced by identical switches to ensure proper operation.

The emergency pull-out cable assembly was removed. The new cable drive system incorporates a secondary means of cart retrieval via manual handwheels installed on the two electric winches located on the operating floor.

The control panels for the Unit 2 Fuel Transfer System in the Fuel Building and the Unit 2 Reactor Containment were replaced with new panels. The new panels eliminated solenoid operated valves associated with the air drive system and included all new programmable limit switches. Control panel interlocks and operation remained largely unchanged. The air drive system was demolished to the extent possible (limited mainly by eliminating impediments to the new system and radiological conditions).

<u>Summary Of Safety Analysis</u>

This modification was reviewed to determine if an unreviewed safety question as defined in 10CFR50.59 existed. Consequently, no unreviewed safety questions were known to exist as a result of the change. The result of this evaluation can be stated as follows:

1) The implementation of this Design Change did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR. This design change modified the method of moving the fuel transfer car and replaced underwater limit switches with above water limit switches, which are more sensitive and

reliable. These features decrease the probability of a fuel-handling accident inside containment, as described in Section 15.4.7 of the UFSAR.

2) The implementation of this modification did not create a possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR. This Design Change modified the method of moving the fuel transfer car and replaced underwater limit switches with above water limit switches, which are more sensitive and reliable. These features were improvements in the design, and therefore did not create the possibility for an accident different from the type described specifically in section 14.4.1 of the UFSAR.

3) The implementation of this modification did not reduce the margin of safety as defined in the basis of the Technical Specifications. Only the method of conveyor car movement was changed, thus the margin of safety was not affected or reduced in the basis of TS 3/4.9.

DCP-88-17
Unit 1
CRDR-Benchboard/Vertical Board Modifications

Description

The CRDR performed at the North Anna Power Station in accordance with NUREG-0700, Supplement 1 to NUREG-0737 and NUREG-0801 identified various Human Engineering Deficiencies (HED) regarding the positioning and grouping of instrumentation and controls on the main control benchboard and vertical board sections. The corrective actions and related HEDs are as follows:

1. Corrective Action 18E - Auxiliary steam inlet pressure controller mounted on the vertical board is inconveniently located. (HED 10A03024)

   In order to relocate pressure controller PC-AS105-2, several additional instruments required relocation. Temperature indicator TI-MS111N was relocated in the position left by PI-1446. Controller PC-AS105-2 was relocated, between 34 and 53 inches above the floor, to the space previously occupied by indicator TI-MS111N. This location, on the vertical board, is higher in elevation and allows for easier operation.

2. Corrective Action 19E - Boric acid/demineralizer water flow recorder mounted on the vertical board is inconveniently located. (HEDs 10A02026 and 10A03028)

   Boric acid/demineralizer water flow recorder FR-1113 was moved to a location under the inadequate core cooling monitor on the Vertical Board Section 1-1. FR-1113 was relocated to the space previously occupied by the reactor coolant wide-range temperature recorder TR-1410. (Recorder TR-1410 was relocated as described in Item 4) The relocation of recorder FR-1113 provides a better functional arrangement and will allow the recorder to be closer to the volume control tank blender controls located on the Main Control Benchboard Section 1-1.

3. Corrective Action 35E - Main s amline pressure control valve transmitter/controller signals are not displayed on the control board. (HED 10A02012)

   The existing manual/automatic pressure control stations PC-MS101A-2, PC-MS101B-2, and PC-MS101C-2 on the Main Control Benchboard Section 1-2 did not have the process/transmitter output signal displayed on the control station. Each existing HAGAN control station was replaced with a similar station that features measured variable process indication in addition to the already displayed setpoint and controller output signal. Component identifiers were changed from PC (pressure controller) to PIC (pressure indicating controller).

4. Corrective Action 37E - RCS wide-range temperature recorders are located too low on the vertical board. (HED 10A02016)

RCS wide-range temperature recorders TR-1410, TR-1420, and TR-1430 require frequent monitoring and were relocated in an area between 50 to 65 inches above the floor. This complies with the guidance of NUREG-0700. Due to space availability on the vertical board and to maintain a uniform sequence of displays, the RCS temperature recorders were arranged in a left-to-right sequence. The RCS temperature recorders were relocated to spaces previously occupied by the four power range delta flux recorders (NR-1-41, NR-1-43, and NR-1-44). These four recorders were not being used by Operations and power range delta flux is available on the Main Control Benchboard Section 1-1.

5. Corrective Action 39E - RCP seal leak-off flow recorders have square root scales (HEDs 10A02027, and 10A02250)

Flow recorders FR-1154A and B located on the Main Control Vertical board Section 1-1 have square root scales. The non-linear range for FR-1154B is 0 to 1 gpm and the range for FR-1154A is 0 to 6 gpm. Square root extractor cards were added to the process racks to linearize the flow signals to the recorders. The use of linear scales was preferred for small ranges of values per NUREG-0700.

6. Corrective Action 55E - Valve position light indication on the main control board for safety injection accumulator outlet valves are extinguished when the motor control center circuit breaker is open. The common amber light goes off when all three accumulator outlet vales are fully open. (HED 10A02302)

To conform to the guidance of NUREG-0700, system/equipment status should be inferred by illuminated indicators, and never by the absence of illumination.

Resolution of this Corrective Action consisted of rewiring the stem-mounted limit switch contacts on each safety injection accumulator outlet valve so that the common amber monitor light on Vertical Board Section 1-3A will be lit when all three accumulator valves are in fully open positions. The amber lens on the monitor lights was replaced with a red lens.

As a result of this modifications, two additional, similar monitor lights were also changed. the valves associated with these lights are MOV-1836, MOV-1869A, MOV-1869B, MOV-1890A and MOV-1890B. The revised circuitry provided green (closed) valve position indications whenever the valves associated with each monitor light are closed.

Summary of Safety Analysis

The above described CRDR modifications do not constitute an unreviewed safety question as defined in 10CFR50.59. The modifications were limited to relocating existing equipment, upgrading existing controllers, and enhancing operator monitoring capabilities. No system function or design bases were altered.

a. Implementation of these modifications does not increase the probability of occurrences, or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Updated Final Safety analysis Report (UFSAR).

   Relocation, upgrade, and/or enhancement of existing equipment does not affect the function or operation of the associated systems.

b. Implementation of these modifications does not increase the possibility of an accident or a malfunction of a different type other than evaluated previously in the UFSAR.

   All new equipment meets the existing material qualifications. Wiring changes, where applicable, do not have the potential to feed back into protective circuitry. None of the modifications alter the associated system functions or design bases.

c. The implementation of these modifications does not reduce the margin of safety as defined in the basis of any technical specification.

   Modifications performed do not involve any changes to the operation of equipment important to safety. The modification does not add or delete any safety related or important to safety components within the control room. System operation and/or design is not impacted by this modification.

DCP-88-18
Unit 2
CRDR-Benchboard/Vertical Board Modifications

Description

The CRDR performed at the North Anna Power Station in accordance with NUREG-0700, Supplement 1 to NUREG-0737 and NUREG-0801 identified various Human Engineering Deficiencies (HED) regarding the positioning and grouping of instrumentation and controls on the main control benchboard and vertical board sections. The corrective actions and related HEDs are as follows:

1. Corrective Action 18E - Auxiliary steam inlet pressure controller mounted on the vertical board is inconveniently located. (HED 10A03024)

   In order to relocate pressure controller PC-AS205-2, several additional instruments required relocation. Temperature indicator TI-MS211N was relocated in the position left by PI-2446. Controller PC-AS205-2 was relocated, between 34 and 53 inches above the floor, to the space previously occupied by indicator TI-MS211N. This location, on the vertical board, is higher in elevation and allows for easier operation.

2. Corrective Action 19E - Boric acid/demineralizer water flow recorder mounted on the vertical board is inconveniently located. (HEDs 10A02026 and 10A03028)

   Boric acid/demineralizer water flow recorder FR-2113 was moved to a location under the inadequate core cooling monitor on the Vertical Board Section 2-1. FR-2113 was relocated to the space previously occupied by the reactor coolant wide-range temperature recorder TR-2410. (Recorder TR-2410 was relocated as described in Item 4) The relocation of recorder FR-2113 provides a better functional arrangement and will allow the recorder to be closer to the volume control tank blender controls located on the Main Control Benchboard Section 2-1.

3. Corrective Action 35E - Main steamline pressure control valve transmitter/controller signals are not displayed on the control board. (HED 10A02012)

   The existing manual/automatic pressure control stations PC-MS201A-2, PC-M201B-2, and PC-MS201C-2 on the Main Control Benchboard Section 2-2 did not have the process/transmitter output signal displayed on the control station. Each existing HAGAN control station was replaced with a similar station that features measured variable process indication in addition to the already displayed setpoint and controller output signal. Component identifiers were changed from PC (pressure controller) to PIC (pressure indicating controller).

4. Corrective Action 37E - RCS wide-range temperature recorders are located too low on the vertical board. (HED 10A02016)

RCS wide-range temperature recorders TR-2410, TR-2420, and TR-2430 require frequent monitoring and were relocated in an area between 50 to 65 inches above the floor. This complies with the guidance of NUREG-0700. Due to space availability on the vertical board and to maintain a uniform sequence of displays, the RCS temperature recorders were arranged in a left-to-right sequence. The RCS temperature recorders were relocated to spaces previously occupied by the four power range delta flux recorders (NR-2-41, NR-2-43, and NR-2-44). These four recorders were not being used by Operations and power range delta flux is available on the Main Control Benchboard Section 2-1.

5. Corrective Action 39E - RCP seal leak-off flow recorders have square root scales (HEDs 10A02027, and 10A02250)

Flow recorders FR-2154A and B located on the Main Control Vertical board Section 2-1 have square root scales. The non-linear range for FR-2154B is 0 to 1 gpm and the range for FR-2154A is 0 to 6 gpm. Square root extractor cards were added to the process racks to linearize the flow signals to the recorders. The use of linear scales was preferred for small ranges of values per NUREG-0700.

6. Corrective Action 55E - Valve position light indication on the main control board for safety injection accumulator outlet valves are extinguished when the motor control center circuit breaker is open. The common amber light goes off when all three accumulator outlet vales are fully open. (HED 10A02302)

To conform to the guidance of NUREG-0700, system/equipment status should be inferred by illuminated indicators, and never by the absence of illumination.

Resolution of this Corrective Action consisted of rewiring the stem-mounted limit switch contacts on each safety injection accumulator outlet valve so that the common amber monitor light on Vertical Board Section 2-3A will be lit when all three accumulator valves are in fully open positions. The amber lens on the monitor lights was replaced with a red lens.

As a result of this modifications, two additional, similar monitor lights were also changed. the valves associated with these lights are MOV-2836, MOV-2869A, MOV-2869B, MOV-2890A and MOV-2890B. The revised circuitry provided green (closed) valve position indications whenever the valves associated with each monitor light are closed.

Summary of Safety Analysis

The above described CRDR modifications do not constitute an unreviewed safety question as defined in 10CFR50.59. The modifications were limited to relocating existing equipment, upgrading existing controllers, and enhancing operator monitoring capabilities. No system function or design bases were altered.

a. Implementation of these modifications does not increase the probability of occurrences, or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Updated Final Safety analysis Report (UFSAR).

   Relocation, upgrade, and/or enhancement of existing equipment does not affect the function or operation of the associated systems.

b. Implementation of these modifications does not increase the possibility of an accident or a malfunction of a different type other than evaluated previously in the UFSAR.

   All new equipment meets the existing material qualifications. Wiring changes, where applicable, do not have the potential to feed back into protective circuitry. None of the modifications alter the associated system functions or design bases.

c. The implementation of these modifications does not reduce the margin of safety as defined in the basis of any technical specification.

   Modifications performed do not involve any changes to the operation of equipment important to safety. The modification does not add or delete any safety related or important to safety components within the control room. System operation and/or design is not impacted by this modification.

DC 89-04A-3

Service and Instrument Air Systems Upgrade North Anna / Units 1 & 2

DESCRIPTION

System failures caused by Instrument Air (IA) failures have occurred in the Nuclear Power Industry at a rate that indicated greater attention to Instrument Air Systems was warranted.

The IA system provides compressed air primarily to air-operated control valves, such as the turbine control valves, secondary drains normal and high level divert valves, and feedwater and auxiliary feedwater control valves. Backup air flow capability is provided from the Service Air (SA) Subsystem during normal plant operation. The originally installed IA compressors were oil-free Ingersoll-Rand reciprocating compressors. The problem with the IA compressors was a combination of compressor type, environment, and available cooling water. The compressor was a reciprocating machine which inherently incurred higher maintenance than other designs due to the number of moving parts. This was aggravated by a rather warm operating environment resulting from surrounding equipment and the Heating Ventilation and Air Conditioning (HVAC) design for the area. Compounding the problem, the compressors were cooled with Service Water. This cooling media caused corrosion of the coolant passage in the compressor. Corrosion buildup restricted the flow and deteriorated the heat transfer rate. The Service Water piping was replaced with stainless steel to alleviate plugging in the pipes.

The IA dryers (1/2-IA-D-1), are used to remove moisture in the air discharged by the instrument air receivers. The dryer(s) discharge is distributed to the instrument air loads as needed. The original IA dryers were Hankison refrigerant type dryers which did not meet the air quality requirements since they did not limit the particle size within the air steam to no greater than 3 microns and provide a pressure dewpoint 18 Degrees Fahrenheit below minimum design temperatures. The design indoor temperature is 50 Degrees Fahrenheit. With the ever increasing emphasis being placed on IA Systems, the Station committed to upgrade the performance of the Instrument Air Dryers to meet the quality requirements.

The SA Subsystem of the Compressed Air System provides compressed air to operate air-powered tools and equipment during normal operation and refueling.

It also acts as a backup for the IA Subsystem. In the original design, air was to be compressed by two 100 percent capacity compressors and stored in receiver tanks for use at tool and equipment connections located throughout the station. Pressure control valves between the receiver tanks were to provide a means to supply air from SA to IA.

The original specified SA compressors were oil-free Ingersoll-Rand reciprocating compressors. These machines were proven less reliable than required and were not operating because of damage due to insufficient cooling. The problems with the original SA compressors were the same as explained for the original IA compressors. The problems described for the IA System led to many compensatory actions in order to maintain suitable IA quality to the various components. These actions included the temporary installation of electric motor driven and diesel driven oil-free compressors along with temporary installation of a desiccant-type air dryer. Permanent improvements were required to address the problems noted for the IA system and ensure adequate IA quality for the remaining life of the plant.

To eliminate the problems noted above and also increase the reliability of the Compressed Air System, corrective actions were taken. The existing Sullair compressors 1/2-IA-C-5 were replaced with oil-free, air cooled, rotary screw compressors and designated as SA compressors 1/2-SA-C-1. The existing service air compressors 1-SA-C-1 and 2-SA-C-1 were removed. The new air compressors doubled the capacity of the existing service air compressors and met the design basis capacity requirements of the original service and Instrument Air System.

The desiccant air dryer was relocated from the turbine building to a downstream flowpath of the receiver tank. In addition, a bypass line and associated bypass valve around the dryer, 1-IA-D-7, was added. The bypass valve included a solenoid operated actuator designed to open the bypass valve on low instrument air header pressure.

The instrument air compressors were replaced with more reliable oil-free, rotary screw, water-cooled compressors. The IA compressors remain powered from the emergency bus dedicated for emergency standby service for loss of station power events. The service water pressure boundary was maintained by heat exchangers which were commercial grade dedicated for safety related service.

The IA dryers were replaced with heatless desiccant dryers and associated pre and after filters. The replacement air dryers were sized for each to provide airflow capability for both units. The new dryers maintain a pressure dewpoint significantly lower than the original dryers.

DCP 89-04A-3 removed dryers 1-IA-D-1 and 2-IA-D-1 and installed the new dryers. Compressor 2-IA-C-1 remained operational and compressor 1-IA-C-1, 2-SA-C-1 and 1-SA-C-1 were removed. Sullair compressor 1-IA-C-5 was replaced with a new Atlas Copco compressor designated for 1-SA-C-1.

Summary of Safety Analysis

This Design Change did not constitute an unreviewed safety question as defined in 10CFR50.59, since it did not:

1. Increase the probability of occurrence of an accident or malfunction to safety as previously evaluated in the UFSAR. The reliability of the Compressed Air System was increased since the Service Air and Compressed Air compressor were replaced with more reliable air compressors. In addition, Instrument Air will be available during a loss of power event since the compressors would continue to receive power from the Emergency Power System.

2. Create a possibility for an accident or malfunction of a different type than evaluated in the UFSAR. This modification replaced the original two service air compressors with two new rotary screw air compressors capable of delivering the same air requirements as the original Service and Instrument Air compressors. In addition, the IA compressors were replaced with more reliable compressors and the IA dryers were capable of meeting air quality requirements sized for two unit operation.

3. Reduce the margin of safety as defined in the basis of any Technical Specification. The new service air compressors were not required for accident conditions and operation of the new compressors did not alter the function of any safety related system. The new IA compressors remain powered from the emergency bus.

DCP 89-28

SERVICE WATER PUMP DISCHARGE FLOW MONITORING SYSTEM NORTH ANNA UNIT 1 AND 2

DESCRIPTION

Service Water (SW) pumps 1-SW-P-1A, 1-SW-P-1B, 2-SW-P-1A, and 2-SW-P-1B, are required to be tested quarterly for discharge pressure and flow rate in compliance with ASME Section XI and the North Anna IST Program requirements. The flow instrumentation used for this testing was not providing a "true" indication of the specific pump discharge flow rate. Cross-connected piping lines serve as parallel flow paths which were adding and/or subtracting from the "true" flow rate.

New flow instrumentation (transducers) was installed in the SW Tie-In Vault on the SW discharge headers. The transducers were mounted in a non-intrusive fashion onto the piping. A flow computer was also installed to process the information received from the transducers and provide a digital read-out.

Power for the transducers and the flow computer was derived from non-safety related (non-vital) 120V AC sources.

SUMMARY OF SAFETY ANALYSIS

This design change did not create an unreviewed safety question as defined in 10 CFR 50.59.

A. The implementation of this modification did not increase the probability of occurence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

   This design change did not affect the operation of the safety-related SW pumps or the design basis of the SW system to perform its intended function. This design increased the reliability of the SW pumps since periodic testing is more accurately conducted to assess the operational readiness of the pumps by monitoring their performance characteristics directly.

B. The implementation of this modification did not create a possibility for an accident or a malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

This instrumentation added by this design change has no accident scenorio postulated which would threaten any other system's performance. There is no interaction between the new flow instrumentation and any other system.

C. The implementation of this modification did not reduce the margin of safety as defined in the basis of any Technical Specification.

The instrumentation which was added is physically passive and bears no impact on safety margins. There is no interaction (control functions) between this instrumentation and the design function between the SW system.

DC 90-04

Control Rod Drive Room HVAC
System Upgrade
North Anna / Units 1 & 2

Description

The Unit 1 and 2 Cable Vaults and Rod Drive Rooms (both known as the Rod Drive Rooms) contain numerous pieces of electrical equipment and components, some of which are safety-related and/or safe-shutdown related.

Prior to the HVAC system upgrade, high ambient temperatures were experienced in the Rod Drive Rooms. Some of the equipment in these rooms, such as the Rod Control Cabinets had experienced failures related to the elevated ambient temperatures. Emergency lighting batteries had also experienced premature failures which were directly related to the high ambient temperatures. It was apparent that the existing heating and ventilation system was inadequate to sufficiently cool the two areas.

Design Change 90-04 modified the existing Rod Drive Rooms heating and ventilation system. The modification installed a cooling coil to each ventilation system.

Summary of Safety Analysis

This design change does not create an unreviewed safety question as defined in 10CFR50.59. The implementation does not increase the occurrence of an accident or malfunction of equipment important to safety as evaluated in the UFSAR, or the probability of equipment failure of a different type than previously analyzed in the UFSAR.

There is no change to the margin of safety as contained in any of the Technical Specifications.

DCP 90-14
PRESSURIZER HEATER CIRCUIT UPGRADES
NORTH ANNA UNIT 2

Description

North Anna Power Station had been experiencing spurious tripping of the pressurizer heater circuits. Both circuit breakers and fuses have activated to interrupt the power to groups of heaters. The root cause of this spurious tripping was identified as undersized power cables. The power cables used in the pressurizer heater circuits were #4 AWG copper from the distribution panels to the junction boxes at the pressurizer. The undersized cables generated excessive heat resulting in conduits which were hot to touch and breakers which were forced to operate without proper heat sinks. This additional heat was also reducing the qualified life of the cable by accelerating the aging process.

The required ampacity for cables in this circuit is 71 amps. The as-installed ampacity of the #4 AWG cables was 60.4 amps in some circuits. The new #1/0 cable used has an ampacity of 87.7 amps. Calculations have shown that this size will provide substantial margin in ampacity. The result is less resistance heating, better performance of breakers and fuses, and extended cable qualified life.

This DCP replaced all the conduits with cable trays, from the load side of the pressurizer heater circuit breaker panels through to the containment penetrations, in the cable vault. In the penetration junction boxes, inside and outside containment, terminal blocks associated with the pressurizer heater cables were replaced to accommodate the larger cables. The new fuses are 90 amp current-limiting fuses in place of the former 70 amp OTS fuses.

Safety Analysis

The replacement of cables with larger cables, and the use of current limiting fuses does not increase the probability of the consequences of an accident or malfunction of the equipment important to safety. The above equipment referenced devices will not adversely impact the Tech. Spec. required equipment nor cause revision to the UFSAR.

The replacement of cables with larger cables, and the use of current limiting fuses does not create the probability of an accident or malfunction of a different type than any evaluated previously in the UFSAR because the modification is not adversely impacting any equipment necessary for accident mitigation or safe shutdown.

The replacement of cables with larger cables, and the use of current limiting fuses does not reduce the margin of safety as defined in the bases of any Technical Specification.

DC 91-01

AUXILIARY FEEDWATER TURBINE CONTROL MODIFICATION
NORTH ANNA / UNITS 1 & 2

DESCRIPTION

The modification was to change the control circuits for the Main Steam Trip Valves supplying steam to the 1,2-FW-P-2 pumps. The change provides logic such that the steam driven auxiliary feed pumps will be secured from operation in the same manner as the motor driven pumps. That is, a manual operator action is required to stop all of the Auxiliary Feedwater pumps. This change did not impact the Safety Related function of the steam driven pumps in that it dealt with a modification affecting the method of securing the pumps. This change will affect actions after the required Safety Related "Start" has occurred, and the situation has been brought under control to the point where it is appropriate to secure the associated systems.

An auxiliary relay was added to the Main Steam Trip Valve control circuits such that it would deenergize after an automatic 1,2-FW-P-2 turbine start. This relay will not allow the automatic start signal to stop the pumps when the automatic function is reset. It will be necessary to select the manual "Close" position on the appropriate Main Steam Trip Valve control switch. The circuit control switches can be returned to the "Automatic" position after the automatic start function is reset, and when the operator is prepared to stop the respective pumps.

SUMMARY OF SAFETY ANALYSIS

The modification of the Main Steam Trip Valve control circuits 1MSSA07, 1MSSB07, 2MSSA07 and 2MSSB07 shown on Units 1 & 2 drawings ESK-6PR did not constitute an "unreviewed safety question" as defined in 10CFR50.59. A Safety Evaluation was prepared for this modification in accordance with VPAP 3001 and is included in Appendix 8.10.

a. The implementation of this modification did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Updated Final Safety Analysis Report.

The modification to the Main Steam Trip Valve control circuits added an auxiliary relay which did not adversely affect the operation of the circuits. The controls will operate as they did before the modification with the exception that there will be no automatic circuit reset; this will enhance the availability of the pumps. The Systems will perform their Safety Related functions as they did before the modification.

b. The implementation of this modification did not create a possibility for an accident or a malfunction of a different type than evaluated previously in the Updated Final Safety Analysis Report.

The addition of this auxiliary relay was made "in kind" with the philosophy used during the original design. This circuit is a "failsafe" circuit that requires components to be available to prevent the operation of the steam driven feed pump. The steam turbine will start for the following conditions: loss of air to the Main Steam Trip Valves, loss of 125VDC control power and/or the failure of a required coil. Should the auxiliary relay coil fail, the steam driven feed pump will start. In the unlikely event that the auxiliary relay fails to open its contact, the circuit will operate exactly as it has in the past. These conditions will not create the possibility of an accident or malfunction of a different type than any evaluated previously.

c. The implementation of this modification did not reduce the margin of safety as defined in the basis of any technical specification.

The control, function and operating conditions of the Auxiliary Feedwater System were not affected by the addition of this auxiliary relay. The modification in no way adversely affects the availability of the system.

DCP 91-03
Radio System Upgrade - Antennas
North Anna Unit 1 and Unit 2

Description

During 1988-1989, the Nuclear Excellence Board (NEB) reviewed the communications systems at North Anna and Surry to recommend improvements. The recommendations of the NEB were presented in their report; "Report on Communications", dated December 1989. The report identified two recommendations for North Anna; 1) radio coverage within the Auxiliary and Containment Buildings required upgrades, and 2) channel availability needed expansion via a radio trunking system. Additionally, the Company's digital network was expanded, and to include North Anna in this expansion, a new microwave antenna was required on the Turbine Building roof.

DCP 91-03 was the first phase for the total system implementation. Ten antennas (five per unit) were installed at various locations throughout the station (Turbine Building, Auxiliary Building, and Containment Building). Additionally, supporting equipment such as amplifiers, and coaxial cables were installed and, the existing security radio system was modified to handle the system enhancement. Each, new, antenna has a primary and a back-up coaxial cable to ensure operability. In order to support the digital network expansion, a new fiber optics cable was installed from the PBX building to the Turbine building roof and the new microwave antenna.

Summary of Safety Analysis

This design change in accordance with DCP 91-03 does not create an "unreviewed safety question" as defined in 10CFR50.59.

A. Implementation of this modification does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

DCP 91-03 installed the first phase of the overall project; ten antennas (and supporting equipment), and enhancements for the digital network expansion (new fiber optic cable and a microwave antenna). This modification does not affect any setpoints, functions, or operation of any safety system as discussed and previously evaluated in the UFSAR

B. The implementation of this modification does not create the possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

No safety systems or functions are involved in this modification. A seismic evaluation was performed for the antenna installation. If the antenna and cables were to fall, there will be no adverse impact on any safety related systems or equipment.

C. The implementation of this modification does not reduce the margin of safety as defined in any Technical Specification.

No safety systems or functions are involved in this modification. The station radio system is not a Technical Specification required piece of equipment.

DCP-91-016
Unit 1
Emergency Diesel Generator Battery Replacement

Description

Recent Electrical Distribution System Functional Inspection (EDSFI) audit questions were raised regarding the design basis for the existing diesel batteries, battery racks, and associated chargers. These questions encompassed battery demand load, battery load capacity, the effect of the ambient environment on the battery and charger capabilities, and lack of document calculations to support the battery, rack, and charger adequacy.

The existing batteries were replaced with Exide 3-CA-5 type batteries which are the same as the existing batteries. Each battery is 60 cells and consists of twenty (20) containers with a cell rating of 100 ampere-hours. Sizing calculation no. 01040.4910-E-1 verified that the new batteries will perform adequately for the expected duty cycle (2 hours) and ambient conditions. The batteries were verified to comply with the capacity and capability requirements for an expected ambient temperature as required by IEEE-485-1983.

The existing battery charger and dc cables were determined by calculation to be adequately sized.

Summary of Safety Analysis

The replacement of the Unit 1H and 1J Emergency Diesel Generator Batteries does not constitute an unreviewed safety question as defined by 10CFR50.59. The replacement was a one-for-one installation. The one-for-one replacement did not alter the system design basis or operational characteristics.

a. Implementation of the modification did not increase the probability of occurrences, or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Updated Safety Analysis Report.

   Modification involved a one-for-one replacement of the existing batteries for the Unit 1H and 1J Emergency Diesel Generators. No system operational characteristics were altered. The new batteries and racks meet all existing seismic and capacity requirements.

b. The implementation of this modification did not increase the possibility of an accident or a malfunction of a different type other than evaluated previously in the UFSAR.

Modification involved a one-for-one replacement of the existing batteries for the Unit 1H and 1J Emergency Diesel Generators. The new batteries meet all existing seismic and capacity requirements, and are identical to the existing. All operability and design basis requirements are unchanged.

c. The implementation of this modification did not reduce the margin of safety as defined in the basis of any technical specification.

Modification involved a one-for-one replacement of the existing batteries for the Unit 1H and 1J Emergency Diesel Generators. All technical specification requirements for the batteries are unchanged. The new batteries meet all seismic and capacity requirements.

DCP-91-017
Unit 2
Emergency Diesel Generator Battery Replacement

Description

Recent Electrical Distribution System Functional Inspection (EDSFI) audit questions were raised regarding the design basis for the existing diesel batteries, battery racks, and associated chargers. These questions encompassed battery demand load, battery load capacity, the effect of the ambient environment on the battery and charger capabilities, and lack of document calculations to support the battery, rack, and charger adequacy.

The existing batteries were replaced with Exide 3-CA-5 type batteries which are the same as the existing batteries. Each battery is 60 cells and consists of twenty (20) containers with a cell rating of 100 ampere-hours. Sizing calculation no. 01040.4910-E-1 verified that the new batteries will perform adequately for the expected duty cycle (2 hours) and ambient conditions. The batteries were verified to comply with the capacity and capability requirements for an expected ambient temperature as required by IEEE-485-1983.

The existing battery charger and dc cables were determined by calculation to be adequately sized.

The Unit 2 battery racks did not contain the same number of secondary steel members as the Unit 1 racks. The missing bracing members were added to the Unit 2 racks. These racks are not structurally equal and identical to the Unit 1 racks. The racks are safety related and designed to seismic criteria.

Summary of Safety Analysis

The replacement of the Unit 2H and 2J Emergency Diesel Generator Batteries does not constitute an unreviewed safety question as defined by 10CFR50.59. The replacement was a one-for-one installation. The additional bracing members added to the Unit 2 battery racks restored these racks to their original design conditions. The one-for-one replacement did not alter the system design basis or operational characteristics.

a. Implementation of the modification did not increase the probability of occurrences, or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Updated Safety Analysis Report.

Modification involved a one-for-one replacement of the existing batteries for the Unit 2H and 2J Emergency Diesel Generators. The addition of missing bracing members restored the battery racks to their original design. No system operational characteristics were altered. The new batteries and racks meet all existing seismic and capacity requirements.

b. The implementation of this modification did not increase the possibility of an accident or a malfunction of a different type other than evaluated previously in the UFSAR.

Modification involved a one-for-one replacement of the existing batteries for the Unit 2H and 2J Emergency Diesel Generators. The new batteries and racks meet all existing seismic and capacity requirements. The new batteries are identical to the existing. All operability and design basis requirements are unchanged.

c. The implementation of this modification did not reduce the margin of safety as defined in the basis of any technical specification.

Modification involved a one-for-one replacement of the existing batteries for the Unit 2H and 2J Emergency Diesel Generators. All technical specification requirements for the batteries are unchanged. The new batteries meet all seismic and capacity requirements.

DCP 91-100

RM-SW-109 SW Reservoir RM Modification
North Anna / Unit 1 & 2

Description

In order to make the RM-SW-109 subsystem more reliable, three minor changes in design were implemented. These changes consisted of rerouting the RM-SW-109 detector discharge line to allow visual confirmation of flow (adding daily verification of flow to the operators log as well as a quarterly PT), installation of a power supply noise suppressor to suppress noise and making permanent the anti-jamming disable interim measure as left by DCP 84-43. Bench testing had verified that even when inputs to the rate meter exceed 100%, an LED indication for range will remain on. This will continue to provide positive indication of radiological problems for the operator to act upon. The anti-jamming circuit was designed to blow a fuse upon off scale high readings, thus causing a trouble alarm. This circuit feature was found to be vulnerable to electromagnetic interference (EMI) and an unacceptable number of false alarms were experienced.

Summary Of Safety Analysis

An unreviewed safety question was not created because:

The implementation of this DCP did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR because: The measures taken to improve reliability and provide flow indication enhanced the existing design. RM-SW-109 was not evaluated in the UFSAR as important to safety. The consequences of an accident were not be altered because radiation monitoring of the SW system is done primarily by other monitors.

The implementation of this DCP did not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR because: Design of the flow indication used sound engineering practices. The power supply regulator installation was a common and prudent method for eliminating noise related problems with sensitive instrumentation. The elimination of the anti-jamming feature only removed nuisance alarms on the high end which is redundant to other detectors. These other detectors are not susceptible to the noise sources which plagued RM-SW-109. High activity rates in the SW would not go undetected. In the event that the rate meter went off scale, the digital readout would show all "E"s and an LED would be lit to show "Range" (i.e. off scale high). These positive indications to the

operators would direct the operators to enter the appropriate response procedures (AP 5.1).

The implementation of this DCP did not reduce the margin of safety as defined in the basis of any Technical Specification because: RM-SW-109 is not one of the radiation monitors which provides the margin of safety.

DCP 91-104
SPENT RESIN DEWATERING TANK PLATFORM CAGE
NORTH ANNA UNIT 1

DESCRIPTION

A jail bar type cover was installed over the opening below the platform to the spent resin dewatering tank. Previously, an opening of approximately 24" high by 40" wide, bounded by concrete on three sides and the platform above, existed through the spent resin dewatering tank cubicle wall. This cubicle is a locked, high radiation area. The cover restores control over the access to this cubicle.

The jail bar cover consists of two angles bolted with Hilti 'Kwik' Bolt II's to the concrete edges on either side of the opening. Horizontal bars span between the angles and a single vertical bar connects them in the center.

SUMMARY OF SAFETY ANALYSIS

The jail bar cover is a seismically designed structure. In the event of a DBE the cover will not fall, deform, or adversely impact a Safety-Related system, structure or component. As an example, even if all 34 LBS of dead load were to be concentrated at one of the 3/8" diameter HKB II's, there would still be a factor of safety of 36 against dead load failure in shear. Tension is not present in the bolt as these forces are self-equilibrating. In addition, assuming a horizontal and vertical acceleration of 10g, maximum bending stress in the 3/4" diameter round bar would not exceed 5000 PSI. The flare-bevel groove welds used to attach the jail bars will not be loaded significantly and are adequate as shown.

The jail bar cover does not increase the probability for an OBE or DBE seismic event as the frequency of such events are unrelated to such minor security details.

Since this jail bar cover is seismically designed, the consequences associated with an OBE or DBE seismic event are not increased.

This jail bar cover has been designed to withstand seismic loads and is a small, self-contained structural modification. As such, the possibility of an accident of a different kind (than previously evaluated in the NAPS UFSAR) would not be considered likely to occur.

DC 91-113

FUSE SIZE AND FUSE BLOCK NUMBER CHANGES
NORTH ANNA / UNIT 1 & 2

DESCRIPTION

This Design Change provided the engineering necessary to resolve fuse control problems in EDG Control Circuits. The first problem dealt with the fact that there were cases where there were more than one fuse block in the individual EDG rooms with the same designator. It was determined that it would be an enhancement to provide unique fuse block numbers in the EDG Cabinets. The second problem dealt with the fact that the Emergency Generator Voltage Control fuses for the 2J EDG are 15 ampere fuses and they were 10 ampere fuses for EDGs 1H, 1J and 2H. It was concluded that the fuses would be changed to 15 ampere fuses for EDGs 1H, 1J and 2H.

The fuses for the control circuits of each EDG were reviewed, and a minimum impact way of providing a unique number identified. The method to be used was to add an "A" at the end of specific numbers to be changed. This would impact only two or three fuse block per EDG room. These fuse blocks were relabeled in accordance with the approved Labeling Administrative Procedure and the Design Change Drawings which are a part of this package. The Voltage Control Circuit fuses were changed to 15 amperes on 1H, 1J and 2H to agree with the manufacturers drawings. This change was made in accordance with an approved electrical maintenance miscellaneous procedure, and the appropriate Design Change Drawings.

SUMMARY OF SAFETY ANALYSIS

This modification does not constitute an "unreviewed safety question" as defined in 10CFR50.59.

a. The implementation of this modification did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

   This modification relabeled existing fuse blocks and changed voltage control circuit fuses from 10 amperes to 15 amperes fuses on 1H, 1J and 2H EDGs. This extremely minor modification did not increase the probability of occurrence of the consequences of an accident or malfunction of equipment.

DC 91-113

FUSE SIZE AND FUSE BLOCK NUMBER CHANGES
NORTH ANNA / UNIT 1 & 2
(CONTINUED)

b. The implementation of this modification did not create a possibility for an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report.

This modification did not change the design of any circuitry. It provides clarification of the fuse labeling, and it provides consistency in the application of control circuit fuses. It did not provide the opportunity for an accident of malfunction of a different kind.

c. The implementation of this modification did not reduce the margin of safety as defined in the basis of any Technical Specification.

This modification does not impact the Technical Specifications.

Changing a fuse block number does not constitute a modification to structures, systems, equipment or components. Changing the Voltage Control Circuit fuses from 10 amperes to 15 amperes does not constitute a material change because these fuses are applied for selectivity and not sensitivity. Additionally, the fault interrupting capability of the two fuses is the same. A change made to conform to the original design basis is not considered a modification and this is a change to make these fuses agree with the original manufacturers drawings.

DC 91-117

Relocation of Service Water Corrosion Monitoring
North Anna / Unit 1 & 2

DESCRIPTION

The Service Water Corrosion Monitoring Station was installed in the Service Water Pump House by EWR 85-767A. Service Water was routed to the monitoring station from valve 2-SW-7 using 1" PVC piping. There were no means of monitoring corrosion prevention chemicals added to the Service Water System, due to a rupture in the PVC piping. This DCP restored monitoring capability by installing seismically qualified piping to supply service water to the monitoring station, and the removal of the monitoring station that existed.

SUMMARY OF SAFETY ANALYSIS

An unreviewed safety question does not exist since the changes did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety or of a different type than previously reviewed in the UFSAR. The margin of safety as set forth in the Technical Specification was not reduced.

DC 91-128

Installation of Flanges In Main Steam
Trip Valves Leak Off Lines
North Anna / Unit 1 & 2

DESCRIPTION

This DCP installed flanges in the Main Steam Trip Valves leak off lines to prevent cutting and welding these lines when maintenance is performed. The flanges were acceptable to be welded in these lines per NAS 1009. The flanges did not interfere with the function of the leak off lines and having a flange on the leak off lines did not affect the ability of the Main Steam Trip valves to operate as designed.

SAFETY ANALYSIS SUMMARY

An unreviewed safety question does not exist since the changes did not increase the probability of occurrence of the consequences of equipment important to safety of a different type than previously evaluated in the UFSAR. The margin of safety as set forth in the Technical Specification was not reduced.

The flanges installed are a convenience to maintenance for the trip valve and installation of the flanges has no effect on the system pressure boundary.

DCP 91-142
Installation of Key-Lock Switches on Turbine Trips
North Anna Unit 2

Description

The existing method for placing a failed channel for either the Unit 2 turbine auto-stop oil pressure switches or the turbine stop valve indications was replaced with permanent key-lock switches. These switches were installed to allow Operations to place any of the seven impacted channels in the "trip" position without the use of jumpers. Each switch was installed in series with it's respective input channel to the Reactor Protection System. Safety Evaluation 91-SE-MOD-073 was performed to evaluate the potential effect of the key-lock switches o the existing channel circuitry.

Summary of Safety Analysis

This design change in accordance with DCP 91-142 does not create an "unreviewed safety question" as defined in 10CFR50.59.

A. The implementation of this modification does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

   Installation of the key-lock switches to enhance placing the seven turbine channels in the "trip" position does not increase the probability of a turbine trip condition not causing the reactor to trip when above 30% power (Loss of External Load and/or A Turbine Trip). The key-lock switches are mechanical in nature and provide no automatic functions. If a key-lock switch failed in the 1) open position, a trip signal would be sent on that channel, or 2) closed position, the circuit that it is in series with would operate normally.

B. The implementation of this modification does not create a possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

   The turbine trip inputs remain unchanged. The key-lock switches are mechanical in nature and are in series with existing circuitry. The switches do not provide any automatic safety functions. This activity does not jeopardize any equipment, system or procedure required to operate the plant safely and to achieve and maintain safe shutdown or to prevent the release of radiation for any condition.

C. the implementation of this modification does not reduce the margin of safety as defined in any Technical Specification.

All turbine trip inputs to the Reactor Protection System remain as designed. No setpoints are altered. This modification enhances the performance of the requirements identified in Section 3.3.1.1 of the Technical Specifications. Installation of the key-lock switches will aid the Operators in placing a failed channel in the "trip" condition.

DC 91-166

PROVIDE VALVE OPERABILITY MODS TO REDUCE INERTIA
NORTH ANNA / UNIT 2

DESCRIPTION

01-FW-MOV-154C was found in the mid-position. This valve had a history of such failures due to excess inertia associated with the motor size and short stroke time. The valve was difficult to control and was set up with a "Bump" and coast control scheme. Extension of the stroke time allowed longer motoring during the stroke of the valve and will reduce the inertia/momentum effect at end of stem travel.

This DCP provided justification and direction for the modification of 02-FW-MOV-254A, 254B and 254C by changing out the motor, motor pinion and worm shaft gears. The new motor will lessen problems with inertia/momentum effects while the new gears will slow down the stroke time to allow for better control of the MOVs.

No unreviewed safety question existed because the modification would not violate the bases and LCOs of the Technical Specifications. All postulated failures were bounded by analyses found in the UFSAR.

02-FW-MOV-254A, B and C are 16 inch Crane gate valves with Limitorque SB-4 actuators (02-FW-MO-254A, B & C). They are used to isolate the FW flow path to limit the available inventory should the Main Steam or FW piping burst in containment The fast acting MOV application is required in order to meet the Technical Specification requirement for FW isolation.

With the new gears, the expected stroke time was slowed down while not exceeding the sum total of responses over the Technical Specification limit for feedwater isolation.

SUMMARY OF SAFETY ANALYSIS

Implementation of this design change does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR.

DC 91-166

PROVIDE VALVE OPERABILITY MODS TO REDUCE INERTIA
NORTH ANNA / UNIT 2

The implementation of this design change does not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR.

The implementation of this design change does not reduce the margin of safety as defined in the basis of the Technical Specification.

DC 91-167

Provide Valve Operator Modifications To Reduce Inertia
North Anna / Unit 1

Description

This DCP provided justification and direction for the modification of 01-FW-MOV-154A and 154B by changing out the motor, motor pinion and worm shaft gears. The new gears slowed the stroke time down in order to lessen the problems with inertia/momentum. The net result was easier control of the valve operator and greater reliability.

01-FW-MOV-154A and B are 16 inch Crane gate valves with Limitorque SB-4 actuators. They are used to isolate the FW flow path to limit the available secondary system inventory should the Main Steam or FW piping burst in containment. This is important to prevent overpressure of the containment structure. These valves had a history of failures due mainly to excess inertia associated with the motor size and short stroke time. These valves were difficult to control and were set up with a "bump" and coast control scheme. The fast acting MOV application is required in order to meet the Technical Specification requirement for FW isolation.

With the new gears the expected stroke time was approximately 6.79 seconds. The new acceptance criteria for the PTs is 6.9 seconds. 6.9 seconds is acceptable because it is greater than 6.79 seconds (the calculated stroke time) while not putting the total of responses over the Technical Specification limit for Feedwater Isolation.

Summary Of Safety Analysis

An unreviewed safety question did not exist because:

The implementation of this DCP did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR because the modified motor operated valves are still able to isolate the feedwater system as designed.

The implementation of this DCP did not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR because the motor operators are still controlled and operated as originally designed.

The implementation of this DCP did not reduce the margin of safety as defined in the basis of any Technical Specification because the TS feedwater isolation time remains within the limits required.

DCP 91-168

Modification To Gaseous Drains
North Anna / Units 1 & 2

Description

The automatic controls associated with 1/2-DG-PCV-101/201 had been removed and all needed document changes had been made by EWR-90-359, A. This DCP documented the decision to abandon the idea of removing the valve in favor of leaving it in place and in the open position. DCP-91-168 served to close out EWR-90-359,A which had indicated further work would be performed and that the modification performed was temporary.

Summary Of Safety Analysis

Safety Evaluation 90-SE-MOD-136 has been determined to be applicable for this DCP. It found that the modification, now made permanent, does not create an unreviewed safety question.

Implementation of this design change does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR.

The implementation of this design change does not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR.

The implementation of this design change does not reduce the margin of safety as defined in the basis of the Technical Specification.

DCP 91-205
AUX FEEDWATER TOTAL FLOW INDICATOR REMOVAL
NORTH ANNA POWER STATION
UNIT 2

DESCRIPTION

Design Change Package (DCP) 87-31 was developed to implement CRDR Corrective Action CA3E and CA11E. In accordance with the corrective actions, the DCP installed an indicator to display the total of the three Auxiliary Feedwater (AFW) loop flows. This total flow indicator was installed during the past Unit 2 outage.

During a review of the EOP's to identify revisions which might be required as a result of DCP 87-31, it was realized that use of the total flow indicator for EOP's would be impractical for the following reasons:

a. The individual loop flow signals have large uncertainties at low flows (less than 100 gpm).

b. Minimum required total flow is based, for most cases, on flow to intact steam generators. The total flow indication includes flow to all steam generators, regardless of the status.

The Total Auxiliary Feedwater Flow Indication (FI-FW200D) was removed from the control room.

The existing VX252 indicator (FI-FW200d) was removed from Vertical Board Section 2-2 and the hole was covered with a panel blank. The summing module was removed from the Secondary Process Cabinet CF. The signal cable used to route the total flow signal cable to the control was spared. Cables between Secondary Process Cabinets (CB, CC, CD, and CF) were removed.

SUMMARY OF SAFETY ANALYSIS

Implementation of this design change did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR because the design change will return the auxiliary Feedwater System back to its original condition, i.e. without a total flow indicator. In addition, the total flow indicator is inaccurate at low flow (less than 100 gpm).

SUMMARY OF SAFETY ANALYSIS (Con't)

The implementation of this design change did not create a possibility for an accident or a malfunction of a different tyOpe than any evaluated previously in the USFAR because the change returned the feedwater system to its original configuration, which was previously reviewed.

The implementation of this design change did reduce the margin of safety as defined in the basis of the Technical Specification because this total flow indicator is not addressed in the Technical Specifications.

DC 91-207

**Replace Pump 1-BR-P-1B With
Goulds Model 3196
North Anna / Unit 1**

DESCRIPTION

This modification replaced the Boron Evaporator Bottoms Pump 1-BR-P-1B with a Goulds model 3196 pump which has a Chesterton 1-2-3-Cartridge seal. CC(SR) and PG (NSR) lines used to supply cooling water to the old seals were no longer needed and were capped and associated instrumentation abandoned in place. The annunciation panels (BR-B-3&4) of the Boron Recovery Control (and simulator) were blanked out.

SAFETY ANALYSIS SUMMARY

This modification increased the availability of pump 1-BR-P-1B by increasing its reliability. It also eliminated the potential dilution of the process fluid by removing external cooling water sources. This modification did not affect equipment required for safe shutdown. An unreviewed safety question did not exist since the change did not:

1. Increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. Create the possibility for an accident or malfunction of equipment of a different type than evaluated in the UFSAR.

3. Reduce the margin of safety as set forth in the Technical Specifications.

DC 92-006-1
OPTICAL TEMPLATING FOR STEAM GENERATOR REPLACEMENT
NORTH ANNA POWER STATION

STATEMENT OF THE PROBLEM

In order to prepare for steam generator replacement, optical templating needed to be performed to verify the angle and orientation of the steam generator nozzles and reactor coolant piping. To support this activity, several work activities were required to be completed prior to the optical templating operation.

IMPLEMENTED RESOLUTION

The following work activities were implemented to support optical templating of the steam generator nozzles and piping.

1) Mechanical buffing was performed on the RCS piping at the steam generator hot and cold leg nozzles.

2) The RCS piping was acid etched at the steam generator hot and cold leg nozzle welds to reveal the weld metal.

3) Low stress punch marks were made on the centerlines of the nozzle welds for future reference during the steam generator replacement project.

4) Removable plastic tape targets were installed on the RCS piping and the steam generator shell for use during the optical templating operation.

5) Brackets were fabricated and installed on the interior of the steam generator cubicle walls to support the optical templating equipment.

6) UT examination was performed on the RCS piping to determine pipe wall thicknesses.

All equipment utilized to perform the optical templating with exception of the brackets and the low stress punch marks were removed from the containment prior to plant restart. The brackets and punch marks will remain in the containment for use during the steam generator replacement outage.

DC 92-006-1
O?TICAL TEMPLATING FOR STEAM GENERATOR REPLACEMENT
NORTH ANNA POWER STATION

Implementation of this design change did not increase the probability occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the USFAR.

The implementation of this design change did not create possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR.

The implementation of this design change did not reduce the margin of safety as defined in the basis of the Technical Specification of the Reactor Core Cooling System.

DC 92-101

Replacement Steam Traps in Main Steam System
North Anna / Unit 1

DESCRIPTION

Steam traps 1-MS-T-420F and 1-MS-T-423D were defective. Both were Velan Model N-4 steam traps. Because of the poor performance record of this model at North Anna, they were replaced with Spirax Sarco Model TD 120 steam traps. To ease future maintenance, these traps were installed in the line using flanges instead of unions. The isolation valves for both these steam traps were in poor condition and were replaced with Conval brand valves. All these replacement components were evaluated and meet or exceed the requirements for the original equipment.

SUMMARY OF SAFETY ANALYSIS

This design change does not create an unreviewed safety question as defined in 10CFR50.59. The implementation of this modification does not increase the possibility of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR.

The new steam traps, valves and flanges meet all design requirements of the original equipment. Seismic qualification of the steam trap piping has not been affected.

Possibility for an accident or malfunction of a different type than previously evaluated in the UFSAR isn't created.

All flow paths for the steam drains remain unchanged. The new steam traps have a capacity in excess of system requirements.

The margin of safety in the basis for any Technical Specification is not reduced.

All components used for this modification meet or exceed the requirements that were used to purchase the original equipment. Operating experience has shown that these components are more reliable that the equipment they replace.

DC 92-102

Anti-Rotation Device for Masoneilan Valve
North Anna / Unit 1

DESCRIPTION

The valve indication for 1-CH-HCV-1200A, which is one of the isolation valves for the letdown orifices, was not operating properly. The shaft on these Masoneilan air operated valves has a tendency to rotate as it strokes. When the shaft rotates, the actuating arm may not line up with the valve position limit switches.

An anti-rotation device was installed on the valve. The device prevents shaft rotation by acting as a guide for the limit switch actuating arm. It is made of stainless steel and is attached to the valve by the mounting bolts for the lower limit switch mounting bracket.

SUMMARY OF SAFETY ANALYSIS

The anti-rotation device was attached externally on the system pressure boundary. Addition of the device does not affect operation of the valve nor affect the seismic qualification of the valve or system piping. The device is small, light and simple with no moving parts to fail, and is sufficiently strong for its intended purpose. Operation of the Chemical and Volume Control System was unaffected by this modification.

This modification did not increase the probability, consequences or possibility of an accident already evaluated in the UFSAR. No unreviewed safety question is involved with this modification, and the margin of safety set forth in the Technical Specifications was not affected.

DC 92-104

Rebuilding of Selected Service Water MOVs
North anna / Unit 1

DESCRIPTION

01-SW-MOV-103/104A thru D provide isolation of the Recirculation Spray Heat Exchangers. They were 16" Allis Chalmers, 150#, Streamseal Butterfly valves and as a result of reoccurring problems, a Justification of Continued Operation (JCO) was written. Part of the action plan established in the JCO called for the inspection and rebuilding of these valves. Upon disassembly for inspection, it was noted that both shaft bores had been worn and no longer met factory dimensions. To correct this, a stainless steel sleeve was installed in the shaft to return the bore's ID to an acceptable dimension. The stub shaft bores were enlarged slightly to accept the sleeve. Metal removed in the boring process was replaced by the Stainless Steel sleeve. Leakage in the valve seat had occurred because the 7/16" pins had become loose and prohibited precise alignment of the disk in the valve. To correct this, the diameter of the groove pins holding the disk to the valve shaft was increased to 5/8". The thrust collars that are used to center the disk were replaced. The collar slid on the stub shaft and was held in place using a set screw. Although this secured the collar to the shaft, some play between the collar and the shaft still existed. To eliminate this, a new collar was installed on the stub shaft. The collar's shrink fit design insured no slack exists between the collar and the shaft when the collar is turned. This facilitates centering the valve disk. This DCP provided engineering direction and documented the repairs made to the valves.

SUMMARY OF SAFETY ANALYSIS

The modifications made by DC 92-204 only affected the internals of selected Service water MOVs. The changes made did not affect the integrity of the valve of the Service Water system. Both continued to operate as designed.

An unreviewed safety question does not exist since the changes did not:

1. Increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety, as previously identified in the UFSAR.

2. Create the possibility of an accident or malfunction of equipment of a different type than any evaluated previously in the UFSAR.

3. Reduce the margin of safety as set forth in the Technical Specifications.

DCP 92-108
CORRECT THE LOCATION OF THE PDS FOR THE SAFEGUARDS AREA VENTILATION SYSTEM
NORTH ANNA POWER STATION

STATEMENT OF THE PROBLEM

The operation of Pressure Differential Switches (01-HV-PDS-107A/107B) was very unreliable in the existing location of the Safeguards Area Ventilation System. The switches failed to energize electric heaters (01-HV-E-3F^/35B), as required, during the performance of periodic tests 1-PT-77.1A/77.1B.

The purpose of the electric heaters was to prevent moisture accumul=+ion in the Iodine Filter Banks (01-HV-FL-3A/3B) by limiting the relative humidity below 70%.

SUMMARY OF SAFETY ANALYSIS

Design Chanc · Package (DCP) 92-108 was developed to relocate the existing ..ocation and install new PDS 107A/107B. The new PDSs were installed to measure and actuate on the increasing differential pressure across the HEPA filters in the Iodine Filter Banks (01-HV-FL-3A/3B). The new location of the PDSs has improved the reliability and enhanced the operation of the electric heaters in the Safeguards Area Ventilation System.

Implementation of this design change did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR because the design change did not modify the operation of the Safeguards Area Ventilation System. The design change only modified the location and model of the PDS which controls the operation of the electric heaters. During accident conditions, the engineered Safeguards Areas where the ventilation exhaust systems are powered from emergency bus sources will dissipate more than sufficient heat to assure relative humidity is above 70%.

The implementation of this design change did not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR because the change altered the existing operation of the Safeguards Area Ventilation System.

The implementation of this design change did not reduce the margin of safety as defined in the basis of the Technical Specification because the electric heaters are not addressed in the Technical Specifications.

DCP #92-110
QUENCH SPRAY PUMP HOUSE LIFTING LUG MODIFICATION
NORTH ANNA UNIT 1

DESCRIPTION

DCP #92-110 was prepared to facilitate the removal and reinstallation of Service Water MOV's from the North Anna Unit 1 Quench Spray Pump House (QSPH). The first modification was to install lifting lugs to the bottom of selected structural steel beams that run overhead in the Unit 1 QSPH basement. A specific, although no exclusive, use of these lifting lugs is to attach rigging for the removal and reinstallation of the Service Water MOV's in the Unit 1 QSPH basement. Secondly, this Design Change provided instructions for the removal of an abandoned pipe support to increase headspace for MOV removal. The third modification performed by this Design Change was the temporary removal and re-routing of lighting conduit in the Unit 1 QSPH basement to facilitate lifting lug installation.

SAFETY ANALYSIS SUMMARY

There are no unreviewed safety questions associated with any of the modifications performed by this Design Change. All lifting lugs have a rated load of 2000 LBS which is consistent with the 250 PSF floor live load that the beams support. A detailed discussion of the lifting lug design and justification for the rated load is provide in calculation number DEO-0109. Removal of the abandoned pipe support poses no unreviewed safety questions since the support served no useful purpose while abandoned. Re-routing of the electrical lighting conduit was performed to current installation specification, NAS-3014, hence no unreviewed safety questions were encountered by this routine work effort.

The modifications performed by this Design Change were evaluated against a Programs Review Checklist to determine their programmatic impact upon existing systems, structures and components. No significant impact was discovered, as the modifications were minor in scope and were implemented under routine work procedures. Since the modifications performed by this Design Change have been justified by calculation and were controlled via existing work procedures and installation specifications, there are no unreviewed safety questions remaining. As such, the probability of experiencing an accident of a different kind remains unchanged. Similarly, the probability and severity of the accidents, previously evaluated under NAPS UFSAR Chapter 15, have no correlation with the implementation of these modifications.

DCP 92-112
Replacement of 1-CH-MOV-1373
Motor and Thermal Overload
North Anna Unit 1

Description

The motor associated with 1-CH-MOV-1373 was damaged during VOTES testing. Motor current reached locked rotor, and exceeded the time limits specified by the manufacturer. An exact one-for-one replacement was not available on-site. DCP 92-112 provided a technical justification for acceptance of a different motor, as well as, re-setting the associated thermal overload. This existing thermal overload setting would not protect the new motor.

Summary of Safety Analysis

Use of the replacement motor and thermal overload will not adversely impact the Charging System operation, specifically the operation of 1-CH-MOV-1373.

An "unreviewed safety question" does not exist because use of the replacement motor and thermal overload does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR. Operation of the Charging System, specifically 1-CH-MOV-1373 will not be modified by providing a replacement motor and thermal overload. The new motor and thermal overload setting perform the same function as the previous.

The possibility of an accident or a malfunction of a different type than any evaluated previously in the UFSAR is not created because only the motor was replaced, and the thermal overload was reset. The new motor meets or exceeds the design criteria for the existing equipment. The new thermal overload setting is such that it will ensure protection of the motor, yet allow the valve to perform it's desired safety function.

The margin of safety as defined in the bases of Technical Specifications is not reduced. Replacing the existing motor and resetting the thermal overload will not impact the ability of the valve to perform it's design function. The new motor meets or exceeds the design requirements for the existing equipment.

DC 92-121

CHANGE SETTINGS U. V. RELAYS H & J BUSES
NORTH ANNA / UNIT 1

DESCRIPTION

A Technical Specification Amendment, No. 150, from Change Request No. 251, was approved November 29, 1991. This Amendment involved changes to the Emergency Bus Degraded Voltage and Undervoltage Setpoints, and was approved with the provision that the setpoint changes would be implemented at the next refueling outage for each Unit. The Loss of Voltage Relays and Degraded Voltage Timer were reset during the Unit 1 refueling outage in order to comply with Technical Specification Amendment No. 150. This was done using approved maintenance procedures which were revised to show the new settings. The Setpoint Document, UFSAR and Station Drawings were changed upon completion of this DCP.

The following relays were reset:

62 - 1H1/1J1
27 - A,B,C - 1H3
27 - A,B,C - 1J3
62B - 1H3/1J3

SUMMARY OF SAFETY ANALYSIS

This modification does not constitute an "unreviewed safety question" as defined in 10CFR50.59.

a. The implementation of this modification did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

   This modification reset certain existing undervoltage detection relays to enhance compliance with Technical Specifications. These relays were reset during a refueling outage; the new setpoint are not part of the primary protection setpoints.

b. The implementation of this modification did not create a possibility for an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report.

This modification changed only the setpoint of existing undervoltage relays, and the work was performed in accordance with approved station procedures which have been used in the past. Additionally, this work was performed during a refueling outage.

c. The implementation of this modification did not reduce the margin of safety as defined in the basis of any Technical Specification.

The setpoint was changed to comply with a Tech Spec Amendment 150 approved November 29, 1991. The Amendment used GDC methodology and calculations methodologies from GN-0030 for single element setpoints; these setpoints provide additional operating margins for loads to be added to the emergency buses. These setpoints are not considered as primary protection setpoints.

DCP 92-127
INSTALL NEW SOLENOID OPERATED VALVE (SOV)
02-FW-SOV-2478-1
NORTH ANNA POWER STATION

STATEMENT OF THE PROBLEM

The existing SOV (02-FW-SOV-2478-1) failed and required replacement. The existing SOV (model # HT8300B61RU) is no longer manufactured by ASCO and an equivalent replacement needed to be determined.

SUMMARY OF SAFETY ANALYSIS

The existing SOV (ASCO model # HT8300B61RU) was replaced with a vendor recommended ASCO model # NP-206-381-3F. Model # NP-206-381-3F has a MOPD of 150 psi. The weight of the new SOV is 3.5 pounds greater than the existing SOV and will not affect the seismic integrity of the FW Reg Valve 2478.

Implementation of this design change did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR because new SOV will operate identical to the existing SOV.

The implementation of this design change did not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR because the operation of the Feedwater system was not be affected by this design change.

The implementation of this design change did not reduce the margin of safety as defined in the basis of the Technical Specification because the operation of the Feedwater system has not been altered by the design change.

DCP 92-130
INSTALLATION OF GRATING REMOVAL TOOLS
NORTH ANNA UNIT 1 & 2

DESCRIPTION

DCP #92-130 was prepared to minimize the response time for accessing telltale drain valves, located under the grating in the Motor-Driven AFWPH. Procedure 1/2-AP-22.5, "Loss of Emergency Condensate Storage Tank 1/2-CN-TK-1", requires an operator to close the telltale drain valves off of the fire main and service water headers (i.e. valve numbers 1-FW-176, 1-FW-228, 2-FW-176, and 2-FW-203). To facilitate this modification, removeable grating sections were cut into smaller, more manageable sections, that can be easily handled by an operator. In addition, a tee handle hex key drive was mounted next to the doorway of both Motor-Driven AFWPH's to help operators unlock the swivel clamp fasteners that hold the grating sections down to the structural steel. These modifications were very effective in minimizing the response time for accessing the telltale drain valves.

SAFETY ANALYSIS SUMMARY

There are no unreviewed safety questions associated with any of the modifications performed by this Design Change. The major issue associated with this modification is the concern for the seismic integrity of the existing Safety related concrete walls into which Hilti 'Kwik' Bolt II's were drilled to mount the hex drive tee handles. The hex drive tee handle does not perform a Safety Related function, nor will it impair any adjacent equipment from performing its function. Concrete drilling activities were controlled under Specification NAS-1023. The total weight of the hex key drive is less than 5 LBS which is insignificant when compared to the allowable tension and shear capacity of the 1/4" diameter anchors. (i.e. 500 LBS tension and 400 LBS shear).

Cutting grating sections and mounting small tools does not affect the probability of experiencing a seismic event, nor does it increase the severity of consequences for a seismic event, as discussed above. Since no other adjacent equipment is impacted by this modification there are no unreviewed safety concerns.
The modifications performed by this Design Change, were evaluated in a 10CFR50.59 safety evaluation to determine their programmatic impact upon existing systems, structures and components. No significant impact was discovered, as the modifications were minor in scope and were implemented under routine work procedures. Improved operator response time has reulted from these modifications.

DCP 92-140

Elimination of Check Valve 1-DG-25
in RC Valve Leak Off Line
North Anna / Unit 1

DESCRIPTION

During start up of Unit 1 after the steam generator inspection outage, a leak was found in the leak off line from 1-RC-24, RC Loop #1 RTD bypass flow isolation valve. The line had apparently been damaged during the outage. Replacement of the damaged section of the line, from the downstream side of check valve 1-DG-25 to the closest elbow, was attempted. However, NDE of the valve, 1-DG-25, socket endprep showed numerous indications in the socket and a replacement was unavailable.

The RTD bypass insolation valve, 1-RC-24, is part of the RTD Bypass Elimination project and will be removed during the upcoming steam generator replacement outage. The packing gland of the valve has been sealed with Furminite. 1-DG-25 was a safety related check valve on the leak off line from 1-RC-24 and was a pipe class boundary. The check valve prevented backflow to the isolation valve, 1-RC-24, in the event that the isolation valve was removed from the system.

The check valve, 1-DG-25, was removed from the line and replaced with a section of pipe. The pipe class boundary was moved to the leak off line flange on 1-RC-24.

SUMMARY OF SAFETY ANALYSIS

This design change did not create an unreviewed safety question as defined in 10CFR50.59.

A. The implementation of this modification does not increase the probability of occurrence or the consequences of a accident or malfunction of equipment important to safety and evaluated in the Final Safety Analysis Report.

The modified piping will meet the original station design criteria. The safety function of the check valve was as a system pressure boundary, and the piping used to replace the check valve is adequate for system design conditions and is an adequate pressure boundary. The check valve did not prevent flow out of the packing gland leakoff so that consequences of failure of the leakoff line remain the same.

B. The implementation of this modification did not create the possibility for an accident or a malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

The check valve, which was eliminated, was a passive element with its safety function being as a pressure boundary. The pipe used to replace the valve has been designed to meet safety-related and seismic requirements. The packing gland of the RTD bypass isolation valve has already been filled with Furminite and the pipe was adequate for system design conditions.

C. The implementation of this modification did not reduce the margin of safety as defined in the basis of any Technical Specification.

DC 92-142

ANTI-ROTATION DEVICE FOR MASONEILAN VALVES
NORTH ANNA / UNIT 2

DESCRIPTION

Two Masoneilan air operated valves in Unit 2, 2-SI-HCV-2853A, the nitrogen inlet to accumulator "A", and 2-CH-HCV-2244, the demineralizer outlet to the volume control tank were not operating properly. The shaft on these air operated valves had a tendency to rotate as it stroked. When the shaft rotated, the actuating arm may not line up with the valve position limit switches.

An anti-rotation device was installed on each valve. The device prevents shaft rotation by acting as a guide for the limit switch actuating arm. It was made of stainless steel and was attached to the valve by the mounting bolts for the lower limit switch mounting bracket.

SUMMARY OF SAFETY ANALYSIS

The anti-rotation device was attached externally on the system pressure boundary. Addition of the device does not affect operation of the valve nor affect the seismic qualification of the valve or system piping. The device is small, light and simple with no moving parts to fail, and is sufficiently strong for it's intended purpose. Operation of the Chemical and Volume Control System was unaffected by this modification.

This modification did not increase the probability, consequences or possibility of an accident already evaluated in the UFSAR. No unreviewed safety question is involved with this modification, and the margin of safety set forth in the Technical Specifications was not affected.

DC 92-148

Rebuilding Of Selected
Service Water MOVs
North Anna / Unit 1 & 2

DESCRIPTION

The DCP implemented changes to the internals of the Service Water MOVs to restore the valves to a like new condition. The butterfly valves are used in the supply and return lines associated with the Service Water system to the Recirculation Spray Heat Exchangers.

Repair of the valves included installing stainless steel sleeves in the valve shaft bores to restore the snug fit to the shaft bushings. A larger groove pin used to attach the disc to the shaft was installed and a new thrust collar was fabricated to reduce the thrust requirement of the motor operator.

SAFETY ANALYSIS SUMMARY

An unreviewed safety question does not exist since the changes did not increase the probability of occurrence of the consequences of an accident or malfunction of equipment important to safety or of a different type than previously evaluated in the UFSAR. The margin of safety as set forth in the Technical Specification was not reduced.

DC 92-150

Reach Rod Wall Penetration Enlargement
North Anna / Unit 2

DESCRIPTION

The isolation valve to the "B" seal water injection filter was replaced and the new valve did not line up correctly with the reach rod penetration in the cubicle wall. Operation of the valve was being performed from inside the cubicle which is a high radiation area. The wall penetration for the reach rod was relocated approximately 6" from the original hole which was covered with a steel plate. The cubicle wall's seismic qualifications and safety related function as a radiation barrier were considered and the additional hole will not compromise the wall integrity.

SUMMARY OF SAFETY ANALYSIS

This design change does not create an unreviewed safety question as defined in 10CFR50.59. The implementation of this modification does not increase the possibility of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR.

The wall still meets all original design requirements. Its safety related function as a radiation barrier is maintained as the original penetration is closed off. Seismic qualification of the wall has not been affected.

Possibility for an accident or malfunction of a different type than previously evaluated in the UFSAR is not created.

The margin of safety in the bases for any Technical Specifications is not reduced.

The change in location for the wall penetration is outside of all system pressure boundaries. The wall is a passive component with no active function in respect to plant operation.

DC 92-151

REPLACE 15#' MOTOR WITH 25#'MOTOR
NORTH ANNA / UNIT 2

DESCRIPTION

While reviewing the new fundamental "thrust required" calculations being prepared by SWEC, Mechanical Engineering found by using the vendors (Westinghouse) supplied thrust requirement for 02-CH-MO-2289B, the existing motor operator capability @80% voltage was exceeded.

The existing 15#' motor installed in 02-CH-MO-2289B was replaced with one rated for 25#'. The new motor has H class insulation instead of the B class presently installed because of commitments made in the EQ program. Existing maintenance procedures were utilized to implement the modification and comprehensive testing for post modification testing. Because of the different motor current characteristics, a new motor overload (O/L) was installed. The latest manufacturers recommendations for O/L testing were applied in order to provide the optimum in component protection.

The adequacy of the new 25#' motor was verified by Mechanical Engineering. They verified that the new motor will perform its required function at both 100% and 80% voltage.

The adequacy of the power supply and the compliance with GDC 17 for voltage profile were verified. The existing power cable was reused because its nominal ampacity is not exceeded.

SUMMARY OF SAFETY ANALYSIS

The implementation of this DCP does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR. The new components provide margin for delivery of all important design features under all postulated conditions. Existing, approved maintenance procedures were used to install and test the new components thus providing the design objectives.

REPLACE 15#' MOTOR WITH 25#'MOTOR
NORTH ANNA / UNIT 2

The implementation of this DCP does not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR because the design remains a like for like replacement in conjunction with standard reviews for GDC 17 and EQ. UFSAR single failure criteria still bounds the design.

The implementation of this EWR does not reduce the margin of safety as defined in the basis of any Technical Specification because the design function of the MOV remains the same with stroke time unchanged. The margin of safety is preserved.

DC 92-152

INCORE FLUX THIMBLE MODIFICATION
NORTH ANNA / UNIT 2

Description

Eddy Current Examination of the Incore Flux Detector Thimbles identified thimbles that required retraction repair due to wall losses. Thimbles G14, J05, and J15 were identified as requiring repair based on Appendix 1 and EWR 92-119. The repair requested retraction of the thimbles approximately 2" and cutting off the retracted piece to provide a new wear surface for the thimble.

The incore flux detector thimbles provide a path for inserting the miniature fission chambers into the reactor for flux mapping. The thimble serves as a pressure boundary between reactor coolant and containment atmosphere. Because of flow induced vibration causing wear of the thimbles near the bottom of the reactor, the thimbles were retracted to provide a new wear surface on the thimble.

Removal of the small portion of the thimble had no adverse impact on the operation of the Incore Flux Detector system since the original thimbles had an additional 16 inches not required for system operation.

Retraction of these thimbles was consistent with 2-PT-210.4 and ISI-15.0 which required that thimbles with 35-55% wall loss be retracted.

This change did not change any system design parameters except the length of the thimble. Removal of the small portion of the thimble had no adverse impact on the operation of the Incore Flux Detector system since the original thimbles can accommodate retraction of up to 16 inches without adverse impact on system operation.

SUMMARY OF SAFETY ANALYSIS

Implementation of this design change does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR.

DC 92-152

INCORE FLUX THIMBLE MODIFICATION
NORTH ANNA / UNIT 2

The implementation of this design change does not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR.

The implementation of this design change does not reduce the margin of safety as defined in the basis of the Technical Specification.

DC 92-158

Safety Injection Accumulator
Tank Nozzle Repair

North Anna / Unit 2

DESCRIPTION

Safety Accumulator Tank 02-SI-TK-1B is located in the Reactor Containment, El.216. The accumulator provides refilling of the lower core plenum in the event of a large break in the Reactor Coolant System. The nozzle was examined due to the NRC In Information Notice No. 91-05 "Intergranular Stress Corrosion Cracking (IGSCC) in Pressurized Water Reactor Safety Injection Accumulator Nozzle." Due to cracking of the 2" nozzle attached to water level sending line 2"-SI-644-602-Q3, the following repair was made:

1. The cracked nozzle was completely removed from 02-SI-TK-1B by boring.

2. A new nozzle was fabricated from low carbon SA-479- TP 304L material. Low carbon grades of stainless steel are much less susceptible to sensitization and are therefore typically considered to be resistant to IGSCC.

3. The replacement nozzle was inserted through the bored opening in the tank and fillet welded inside and out.

SUMMARY OF SAFETY ANALYSIS

The cracked nozzle of the SI Accumulator tank 2-SI-TK-1B was replaced by one made of a material that is compatible with the Accumulator Tank material but less susceptible to stress corrosion cracking. The new nozzle has the same form, fit and function as the original nozzle. The function and operation of the Accumulator Tank and the Safety Injection System remain unchanged.

An unreviewed safety question does not exist since the change does not:

1. Increase the probability of occurrence or the consequence of an accident or malfunction of equipment important to safety, as previously identified in the UFSAR.

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

3. Reduce the margin of safety as set forth in the Technical Specifications.

The cracking was discovered based on the NRC Information Notice and a program to inspect all of the accumulator nozzles on a periodic basis has been instituted.

DC 92-182

Reactor Vessel Level Indication System
Tubing Configuration Change
North Anna / Unit 2

DESCRIPTION

The tee connection at the Reactor Vessel Level Indication System (RVLIS) seal table was leaking. This DCP replaced the RVLIS seal table tee connection fittings. The new configurations reduced the number of fittings at each end connection from two to one, and is in accordance with the latest revision of Westinghouse drawing 1598E06 and DCP 81-01, the design documents used to install the RVLIS System. The function and operation of the RVLIS were not changed by this modification.

SAFETY ANALYSIS SUMMARY

An unreviewed safety question does not exist since the changes did not increase the probability of occurrence or consequences of an accident or malfunction of equipment to safety or of a different type than previously evaluated in the UFSAR. The margin of safety as set forth in the Technical Specifications was not reduced.

DCP 92-198

Provide a Different Background Color of the Benchboard
North Anna / Unit 1

Description

The human factors design of the 15D1, 15E1 and 15F1 breaker control switches was enhanced by providing a different background color. This different color is within the "Offsite Power" demarcation and reinforces the visual indication to the operator of the importance of these switches. The modification required some painting in the control room.

Summary Of Safety Analysis

An unreviewed safety question did not exist because:

The implementation of this DCP did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR because the new demarcations provided proper Human Factors design. The addition represented a passive design feature to reduce the possibility of operator error.

The implementation of this DCP did not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR because operator errors are presently addressed in the UFSAR.

The implementation of this DCP did not reduce the margin of safety as defined in the basis of any Technical Specification because the design of control room benchboard was not significantly altered. The operation of the offsite power switches was not modified.

DCP 92-250
REMOVAL OF INPUT TO RCP LOWER BEARING OIL
HIGH LEVEL ALARM CARD
NORTH ANNA / UNITS 1 & 2

DESCRIPTION

There has been a recurring problem of false high level alarms for the Reactor Coolant Pump lower bearing oil reservoirs. No definite, conclusive root cause could be identified for the false high level alarms, although Westinghouse research has identified the dynamic effects of the spinning oil as a probable cause.

To eliminate the problem of the false high level alarms, the existing patch cords were unplugged and permanent connection plugs were used to disable the RCP lower bearing oil high level alarms. Disconnection of the alarm inputs involved removing the patch cords for the signals for the lower bearing oil high level alarms from RCP's 1-RC-P-1A, 1-RC-P-1B, 1-RC-P-1C, 2-RC-P-1A, 2-RC-P-1B, and 2-RC-P-1C, then installing standard connection plugs.

The original intent of the alarm was to indicate leakage of component cooling water into the reservoir. However, the "high" level alarm was only one of several methods available to the operators for determining RCP motor trouble. Also available are lower bearing high temperature alarms, vibration alarms, and several indications of CC flow and pressure through the lower reservoir cooler.

SUMMARY OF SAFETY ANALYSIS

The removal of the "high" level alarm for the lower bearing oil reservoir does not constitute an "unreviewed safety question" as defined in 10CFR50.59 because:

a. The implementation of this modification did not increase the probability of occurrence, or the consequences of, an accident or malfunction of equipment important to safety and previously evaluated as the Security System is not discussed in the UFSAR. The alarm provided unreliable data and alternate existing indications and alarms are present that give equivalent and reliable information.

b. The implementation of this modification did not create a possibility for an accident or a malfunction of a different type than any evaluated previously. The alarm did not perform any control functions.

c. The implementation of this modification did not reduce the margin of safety. Operations uses alternate methods for obtaining information provided by the alarm.

DC92-252
MISSILE PROTECTION FOR EDG FUEL TRANSFER PIPING
NORTH ANNA UNITS 1 & 2

DESCRIPTION

The 1 1/2 and 1 inch diameter Emergency Diesel Generator (EDG) Fuel Oil Transfer lines which run from the EDG Fuel Transfer Pumps to the EDG's are designed to be protected from the missile hazards described in UFSAR Section 3.5.4. These lines are buried for missile protection from the fuel oil transfer pumps to each EDG. These lines emerge inside of the EDG rooms after penetrating the foundation of the Service Building along the south wall and were found not to be missile protected for approximately 6 feet prior to penetrating the concrete missile barriers just inside of the south wall, E line wall, of the diesel generators.

A structural steel plate was constructed around the fuel oil lines in the space where they emerge from the floor and penetrate through the concrete missile barrier wall. This modification restored missile protection to the seismically supported fuel oil lines.

As a result of this change some other modifications were necessary:

1) Relocation and redesign of pipe supports on the fuel oil supply lines and overflow lines at the location where the lines penetrate the wall into the EDG cubicles.
2) Relocation of settlement survey monitoring points 114, 115, 116, 117 from inside the E-line wall to outside and embedded into the E-line wall.
3) Relocation of light fixtures and other electrical boxes.
4) Installation of a lifting device to facilitate the construction of the steel missile barrier.

SUMMARY OF SAFETY ANALYSIS

This design does not create an unreviewed safety question as defined in 10 CFR 50.59.

The installation of the missile shield did not require any changes to Technical Specification or UFSAR.

This DCP does not increase the consequences or probabilities of accidents as described in the UFSAR.

The margin of safety as described in the Technical Specification will not be affected.

Accidents of different types than previously analyzed will not be possible.

DC 92-315

Replace Govenor Ramp Rate Bushing
North Anna / Units 1 & 2

Description

The Turbine Driven Aux Feedwater Pump governor, 1/2-FW-GOV-2, is a Woodward model PG-PL governor. The governor was supplied with an acceleration control device (ramp rate bushing) which controls the turbine acceleration during pump starts. The ramp rate bushing originally supplied with the governor gradually brought the turbine to full speed within 30 seconds. This modification of the TDAFW Pump governor decreased the amount of time necessary for the pump to reach the required minimum flow and pressure values by changing the governor ramp rate bushing to one rated for 15 seconds. This increased the margin of the Engineered Safety Feature response time of the Aux Feedwater Pumps.

Safety Analysis Summary

The accident and malfunction analysis in the UFSAR remain bounding. The change in time required to accelerate the TDAFW Pump to full speed is within the design capabilities of the system, and creates no possibility for a new type of accident. The integrity of the system is not compromised. No system required for plant safety or stable operation was adversely affected.

Replacement of the ramp rate bushing did not constitute an unreviewed safety question or require a modification to the Technical Specifications.

The modification did not increase the probability, consequences or possibility of an accident.

The margin of safety as set forth in the Technical Specifications was not affected.

Accidents of a different type than previously analyzed will not be possible.

EWR 85-254F

MODIFICATION TO THE HIGH RADIATION POST-ACCIDENT SAMPLING SYSTEM NORTH ANNA UNITS 1 & 2

DESCRIPTION

EWR 85-254 supplied the existing fume hood located by the High Radiation Sample System (HRSS) stations in the Auxiliary Building drumming room (elevation 274′-0") with 125VAC electrical service, water, air and drain system to provide a better utilization of the panel. This modification was non-safety related, however, a safety evaluation was performed for addendum F of the EWR as a result of supporting a portion of the drain line seismically. The non-safety drain line was routed from the sample sink 1-HV-FH-100 located by the HRSS stations to the aftercooler drain for 1-SA-E-1 at elevation 259′-6". The entire span of the drain line installed on the floor elevation 259′-6" was seismically supported while the portion of the drain line at floor elevation 274′-0" was non seismically supported. The reasoning for supporting the 1" dia. drain line seismically below the 274"-0" floor elevation was the potential for seismic interaction with safety related instrument tubing in the vicinity.

SUMMARY OF SAFETY ANALYSIS

The modification did not create an "unreviewed safety question" as defined in 10CFR50.59.

A. The implementation of this modification did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated by the Final Safety Analysis Report.

The 1" dia. drain line was routed and seismically supported at elevation 259′-6" of the Auxiliary Building to preclude seismic interaction with any safety related equipment.

B. The implementation of this modification does not create a possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis report.

As previously stated, the drain line was seismically supported in areas where there was a potential for seismic interaction with other safety related equipment/components in the vicinity. No equipment, systems or procedures required to operate the plant safely were jeopardized by this activity.

C. The implementation of this modification does not reduce the margin of safety as defined in any Technical Specification.

HRSS sample sink 1-HV-FH-100 and drain piping did not involve any Technical Specification Limiting Condition for Operation or Bases. The drain line was seismically supported to preclude potential interaction with other safety related equipment or components.

EWR 87-646B, C

RHR MONORAIL EXTENSION
NORTH ANNA UNIT 2

DESCRIPTION

The existing Monorail over RHR pump 2-RH-P-1B was not long enough to extend past the RHR flat to allow the lowering down of the pump to the containment basement so that craft could perform maintenance on the pump in a lower dose radiational field. To facilitate this, the existing monorail was replaced with a new beam 17'-6" long. Also a new steel hanger was designed, fabricated and installed in the ceiling over the RHR flat to support the longer length of beam. Attachment of hanger was by Hilti bolts installed in accordance with NAS 1023.

The new beam and supports were designated NUREG-0612 monorails and were designed to ANSI B30.11-1980, American National Standard for Monorails and Underslung Cranes. Additional precautions were invoked such as 100% magnetic particle testing of welds, 100% QC verification to NAS 1023 and all materials were purchased Safety Related to ensure traceability. The new monorail and supports were designed and seismically qualified in Stone & Webster Engineering Corporation (SWEC) Calculation No. 14938.76-S-1, Rev. 0.

SUMMARY OF SAFETY ANALYSIS

This design change will not create an unreviewed safety question as defined by 10 CFR 50.59.

A. The implementation of this modification does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment or structures important to safety, previously evaluated in the Final Safety Analysis Report.

   The safety evaluation was performed to ensure seismic qualification of the new monorail and to evaluate installation of Hilti type bolts into a containment structure. The design was documented in SWEC Calculation 14938.76-S-1, Rev. 0, and the installation of Hilti bolts is controlled by NAS-1023.

B. The implementation of this modification does not create a possibility for an accident or a malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

Seismic qualification and provisions of NUREG-0612 were evaluat d and documented in SWEC Calculation 14938.76-S-1, Rev. 0. Monorail will be structurally sound under seismic loading or when moving the RHR pump.

C. The implementation of this modification does not reduce the margin of safety as defined in any Technical Specification.

Attachment of a beam hanger to containment concrete and installation of the monorail beam does not affect Technical Specification. Provisions of NUREG-0612 which deals with moving loads over 2000 lbs. in containment were adhered to. SWEC calculation 14938.76-S-1, Rev. 0, seismically qualifies the monorail.

EWR 88-087A - F

DETERMINE A SUITABLE REPLACEMENT FOR KEROTEST VALVE MANIFOLDS

DESCRIPTION

Existing Kerotest Valve manifolds for Main Steam Flow Transmitters were leaking through and causing differential readings between steam flow channels. Containment entries were required at power because of the differential readings. The Kerotest manifolds were replaced with higher quality Anderson-Greenwood Valve manifolds.

The materials used in the Anderson-Greenwood manifold are equal to or better than those used in the Kerotest manifold. The Anderson-Greenwood manifold can be used in higher pressure/temperature applications and it weighs less than the Kerotest manifold. Since the Anderson-Greenwood manifold weighs less than the Kerotest manifold and was mounted in approximately the same location and orientation, the seismic integrity of the instrument rack was maintained.

SUMMARY OF SAFETY ANALYSIS

This valve replacement does not create an unreviewed safety question as defined in 10CFR50.59. The implementation of this modification does not increase the possibility of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR.

The new valve meets all design requirements of the original valve. Seismic qualifications of the valve piping has not been affected.

Possibility for an accident or malfunction of a different type than previously evaluated in the UFSAR is not created.

The margin of safety in the bases for any Technical Specification is not reduced.

EWR 88-248, D, E

Provide Procedure for Replacement of 2-SI-116 and Determine Suitable Replacement for Rockwell Edwards Valves North Anna / Units 1 & 2

DESCRIPTION

A number of Rockwell Edwards stop univalves (X58N) that were experiencing problems such as body to bonnet leaks, and seat leaks needed to be replaced. Rockwell Edwards no longer manufactured these valves nor had replacement valves. Conval Incorporated manufactures a valve that is the same as the Rockwell Edwards in terms of construction and function and is easier to perform maintenance on. The new valves have pressure/temperature ratings that exceed that of the piping in which they were installed. The Conval was an acceptable replacement for the Rockwell Edwards X58N valve.

SAFETY ANALYSIS SUMMARY

The replacement valve provided the same function and meets the same design requirements as the original valve. Because the Conval met the original design criteria the probability of failure was not increased, or the possibility of an accident as already evaluated in the UFSAR did not increase. The margin of safety as set forth in the Technical Specifications was not affected.

EWR 88-258,A
REPLACEMENT OF MOTOR SPACE HEATER
NORTH ANNA / UNIT 2

DESCRIPTION

During the refurbishment of the 2-SW-P-1B motor, the motor space heaters were determined to be open. The motor heaters were categorized as safety related. The motor space heaters were replaced with non-safety related Chromalox motor space heaters.

The purpose of the motor heater is to prevent condensation in the motor. The heaters for all four service water pump motors are powered from panel 1-EP-CB-84H. The designation for all of the heater cables is N (neutral). Neutral cables are non-safety related, therefore, the heaters were classified as non-safety related, and the non-safety related Chromalox motor space heaters were used as replacements for the safety related heaters.

SUMMARY OF SAFETY ANALYSIS

The replacement of the safety related motor space heaters with non-safety related heaters does not constitute an "unreviewed safety question" as defined in 10CFR50.59 because:

a. The implementation of this modification does not increase the probability of occurrence, or the consequences of, an accident or malfunction of equipment important to safety and previously evaluated as discussed in the UFSAR. The replacement heaters perform the same function as the existing heaters, therefore no UFSAR changes are needed.

b. The implementation of this modification does not create a possibility for an accident or a malfunction of a different type than any evaluated previously. Failure of a heater will not prevent a SW pump from starting.

c. The implementation of this modification does not reduce the margin of safety. Pump redundancy is included in the event of a SW pump failure. The space heater will not increase the consequences of such a failure.

EWR 88-264BQ

Replace Rockwell Edwards Valve with a Conval Valve North Anna / Unit 2

DESCRIPTION

2-CH-255 is a 2" Rockwell Edwards valve on the discharge of the charging pumps which was experiencing seat leakage. A number of Rockwell Edwards valves have experienced problems such as body to bonnet leaks, seat leakage and steam cuts. The Conval Valve is a better design and is easier to perform maintenance on. Both valves are constructed of compatible materials and have pressure/temperature ratings which exceed that of the piping. The Conval is an acceptable replacement for the Rockwell Edwards valve.

SUMMARY OF SAFETY EVALUATION

This valve replacement does not create an unreviewed safety question as defined in 10CFR50.59. The implementation of this modification does not increase the possibility of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR.

The new valve meets all design requirements of the original valve. Seismic qualifications of the valve piping has not been affected.

The valve is a normally open manual valve. Its safety function is as a system pressure boundary. All flow paths for the charging system remains unchanged.

Possibility for an accident or malfunction of a different type than previously evaluated in the UFSAR is not created.

The margin of safety in the bases for any Technical Specification is not reduced.

EWR 88-273, A & C thru F

EDG UNDER/OVER (40/76) EXCITATION RELAY REPLACEMENT
NORTH ANNA / UNIT 1 & 2

DESCRIPTION

To improve the reliability of the Emergency Diesel Generator under/over (40/76) excitation circuits, the Westinghouse D-3 relays were replaced with BBC 76T relays. The replacement relays have higher contact load ratings, and a surge suppressor was added to the circuit. This eliminated the contact deterioration problem experienced by the D-3 relay. Also, the new relay is not susceptible to spurious actuation due to panel vibration.

The B Addendum to this EWR provided interim measures to allow time for implementation of the EWR. That is, it incorporated a Subcomponent Evaluation for the 40/76 functions to downgrade them from Safety Related to Non Safety Related. These functions are not used during an emergency start of the EDGs.

SUMMARY OF SAFETY ANALYSIS

The Safety Related function of the Emergency Diesel Generators has not been diminished as a result of the replacement of the Westinghouse D-3, 40/76, relays. The seismic response of the replacement relays is less than the original, assuring the seismic integrity of the panels. During an emergency EDG start any relay contacts which could prevent operation of the EDG or shutdown the EDG are isolated from the circuit. Further sufficient isolation has been provided between the relays and their power supply. Hence, during emergency EDG start operation any failure or mis-operation of the 40/76 relays, their auxiliary relays or contacts will not prevent or diminish the EDGs' capability from performing its intended Safety function or compromise any class 1E power supplies. The Safety Evaluation, 91-SE-MOD-EWR88-273A, prepared for this change concludes that an unreviewed safety question does not exist because the operation of the circuitry remains functionally identical to the original design.

EWR 88-308, A, B

EDG BLOWER AND RADIATOR AIR TEMP MONITOR
NORTH ANNA / UNIT 1 & 2

DESCRIPTION

Colt Industries had recommended that at least one year of temperature data be used in determining the continued need for glycol. In accordance with that recommendation, the EWR directs that temperature readings shall be taken at the start of the first work shift each day, for a period of one year, and manually entered in the normal operating logs (1-LOG-12 and 2-LOG-12). Also, ambient outside air temperature should be obtained from existing meteorological instrumentation. Two (2) local air temperature indicators (one on each radiator face) were installed for each diesel generator. Measurements taken from these sources are providing trend data and the worst case temperature during winter operation. This information is to be used to determine whether the engine glycol can be eliminated.

Colt Industries also states that the blower differential temperature during no load operations should be no more than 100°F. Two (2) local air temperature indicators were installed on the inlet and discharge of the blowers to monitor the differential temperature during no load operation. When the maximum differential temperature exceeds 100°F, the engine will either be loaded up or idled down to 450 rpm to prevent blower failure due to overheating and thermal growth.

SUMMARY OF SAFETY ANALYSIS

The probes were installed and the testing performed to provide data on the possible overheating of the Diesel Air Blower during a no load condition and the elimination of use of glycol in the Diesel coolant during the winter months.

The major issue considered in the safety evaluation was Loss of Off Site Power and the operation of the Emergency Diesel. The Temperature Monitors installed will have local indication only, and will require no additional Diesel testing. The temperature probes do not provide a control function nor do they alter the Emergency Diesel in any way.

EWR 88-308, A, B

EDG BLOWER AND RADIATOR AIR TEMP MONITOR
NORTH ANNA / UNIT 1 & 2
(CONTINUED)

Failure of the temperature probes causing interference with the Diesel was not considered viable since the probes will either be located outside the Diesel measuring ambient temperature or located where there are not any sensitive components that could be damaged by the failure. The Emergency Diesels were inoperative during the installation of the temperature probes. To prevent an LCO, all work was performed in modes 5 and 6.

No unreviewed safety question existed since possible accidents that could be caused by the activity required the Diesel to be operating. With all maintenance being performed in modes 5 and 6, the major concern was that all work was completed prior to mode change.

EWR 88-317

RADIATION MONITOR MOUNTING HARDWARE
NORTH ANNA / UNIT 1

DESCRIPTION

Six radiation detectors are located in the Main Steam Valve House and are covered with lead boxes. When the units are operating, the Main Steam Valve House is a harsh environment. Also, due to the weight of the lead shielded box covers, a chain fall needed to be rigged to remove the cover to gain access to the radiation detectors.

This modification of radiation detector cover boxes provided maintenance personnel an easy way for removing and re-installing the detector when servicing the unit. Time spent in the harsh environment of the Main Steam Valve House was reduced during servicing of the unit by this modification.

SUMMARY OF SAFETY ANALYSIS

This modification improved the condition of the radiation detector's mounting inside the lead shield box. It does not affect the function or performance of the radiation detectors.

Implementation of this modification does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR.

The implementation of this modification does not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR.

The implementation of this modification does not reduce the margin of safety as defined in the basis of the Technical Specification.

EWR SUMMARY

EWR 89-216A, D, G

Description

Transfer of radiation monitoring pumps 2-RS-259A & B operation was previously accomplished via a 480v 3ϕ switch. As an enhancement, this was removed and replaced with a 120v control switch and isolation breakers.

Safety Analysis

The modification to replace operation transfer between pumps using a 120v control transfer switch in favor of the previously installed 480v 3ϕ was an enhancement to the operation of the pumps and does not constitute an unreviewed safety question.

The modification does not increase the probability, consequences or possibility of an accident.

The margin of safety as set forth in the Technical Specification is not affected.

Accidents of a different type than was previously analyzed will not be possible.

EWR'S #89-217, 217A, 217B
SNUBBER REPLACEMENT
NORTH ANNA UNIT 2

DESCRIPTION

EWR's #89-217, 217A, and 217B were prepared to replace the six originally installed, 8 inch diameter Thompkins-Johnson (TJ) snubbers with new 8 inch diameter Miller snubbers. Affected snubbers are located in the North Anna Unit #2 Main Steam Valve House ar mark number locations: 2-SHP-HSS-217A, 217B, 218A, 218B, 219A, and 219B. The replacement effort involved : removing the TJ snubber, modifying the rear bracket pivot to accommodate the Miller snubber body, adding a rod-eye extension piece tot he Miller snubber to accommodate for the shorter overall length of the Miller snubber, and replacing the newly modified Miller snubber into the corresponding snubber mark number location.

SAFETY ANALYSIS SUMMARY

There are no unreviewed safety questions associated with this modifications in as much as the Miller snubber has been judged to be an acceptable replacement to the TJ snubber. For example, the Miller snubbers have superior rod seals which will improve snubber service life. Also, Miller snubbers have a rated load of 110,000 LBS which exceeds the latest lading at the affected snubber mark number locations by a safety margin that varies from 19.6% to 64.1%, depending upon the individual snubber mark number location. Details of this analysis have been documented in Stone & Webster Engineering Corporation calculation numbers 13075.62-NP(T)-Z-40A-101A-10, R/O (i.e. 2-SHP-HSS-217A & 217B); 13075.62-NP(T)-Z-40B-101A, R/O (i.e. 2-SHP-HSS-218A & 218B); and 130-75.62NP(T)-Z-40C-101A-33, R/O (i.e. 2-SHP-HSS-219A & 219B).

Since the Miller snubbers have been evaluated to be acceptable replacements for the TJ snubbers and the modifications necessary to accommodate their installation was minor, there are no unreviewed safety questions associated with this modification. As such, the replacement does not affect the probability or severity of any previously evaluated NAPS UFSAR Chapter 15 accident. Similarly, no increase in the probability for an accident of a different king would be attributed to this approved snubber replacement.

EWR 89-268I

Revise MOV Open Setpoints Per RSHX SW Flow Balance PT
North Anna / Unit 2

Description

2-PT-75.6 established settings for the MOV's, 2-SW-MOV-203A-D, to achieve a flow balance within the service water system to the RSHX. The PT directed, with SNSOC approval, that once a proper flow balance has been obtained an EWR be written to document the new setpoints. This EWR was written specifically for that purpose. The new setpoints, as established by 2-PT-75.6 were as follows:

	Degrees Open	Percent Open
02-SW-MOV-203A	42.4	47.1
02-SW-MOV-203B	44.4	49.3
02-SW-MOV-203C	48.4	53.8
02-SW-MOV-203D	48.4	53.8

Summary Of Safety Analysis

This setpoint change was reviewed to determine if an unreviewed safety question as defined in 10CFR50.59 exists. Consequently, no unreviewed safety questions are known to exist as a result of the proposed change. The result of this evaluation can be stated as follows:

1) The implementation of this setpoint change does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR. This is because the PT makes actual measurements of the correct open valve position to ensure correct flow through the RSHXs. The UFSAR assumes this condition for all affected accidents.

2) The implementation of this setpoint change did not create a possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR. The PT which provides the inputs for this is a required surveillance to preclude any unanalyzed condition.

3) The implementation of this setpoint change did not reduce the margin of safety as defined in the basis of the Technical Specifications. As stated above, this change results from performance of a TS required PT. As such it only serves to ensure the margin of safety.

EWR 90-001, A-C, E

RE-ROOFING OF SERVICE BUILDING AND ADMINISTRATION BUILDING NORTH ANNA UNITS 1 & 2

DESCRIPTION

The existing built-up roofs of the Service Building (Low Roof, Mechanical Equipment Rooms 1 & 2, Switchgear Room, and Warehouse) and the Administration Building were nearing the end of their useful service life. The roofs were replaced with a new single-ply membrane roof system.

SUMMARY OF SAFETY ANALYSIS

A Safety Analysis was performed due to a UFSAR change. UFSAR section 3.8.1.1.5 stated the roof was a gravel-covered, built-up roof. This EWR removed existing gravel and installed a new single-ply membrane roof. The gravel ballast is not required for the new single-ply membrane roof design.

This EWR will not create an "unreviewed safety question" as defined in 10 CFR 50.59.

A. The implementation of this work does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

   The SAR documents were reviewed, and no previously evaluated accidents or equipment malfunctions related to safety, relevant to the re-roofing of the Service and Administration Buildings, were found. The re-roofing performed by this EWR was of a routine maintenance nature which had no impact on any previously identified accident or malfunction, or their consequences.

B. The implementation of this work does not create a possibility for an accident or a malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

   Roof replacement is a routine maintenance activity with appropriate procedures and guidelines controlling its total implementation. The buildings being reroofed are non-safety related.

C. The implementation of this work does not reduce the margin of safety as defined in any Technical Specification.

This EWR replaced the old, deteriorated roofs of the Service and Administration Buildings with a new single-ply membrane roof system. No Technical Specification Limiting Conditions for Operation or Bases were involved during implementation of this activity.

EWR 90-029, A

NRC CABLE SEPARATION ISSUES

NORTH ANNA UNIT 1 AND 2

DESCRIPTION

Cable separation walkdowns and inspections were performed in the Auxiliary Building per a commitment to the NRC. Several separation problems were identified where the minimum separation requirements of NAS 3012 Section G.1.2 or UFSAR Section 8.3.1.1.2.3 were not met. The identified problems were corrected by EWR 90-029, A. Corrections were implemented using "Siltemp" wrap and "3M Glass Cloth Electric Tape", or using marinite board where sections of cable trays were involved.

SUMMARY OF SAFETY ANALYSIS

This design change, in accordance with EWR 90-029, A, did not create an "unreviewed safety question" as defined in 10 CFR 50.59.

A. The implementation of this modification did not increase the probability of occurrence or the consequences of any accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

Installation of the barriers (wraps and/or marinite boards) did not increase the probability of any accident previously evaluated in the UFSAR. Barriers (wraps and/or marinite boards) decrease the probability of cable damage by the propagation of electrically induced faults. Barriers also reduce potential cable damage by preventing the propagation of faults to adjacent cables or raceways. The UFSAR assumes that barriers exist.

B. The implementation of this modification did not create a possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

The UFSAR assumes that barriers (wraps and/or marinite boards) exist. The barriers are designed to prevent the propagation of electrical faults and maintain a physical separation of the redundant electrical safety systems. The barriers installed by this design change provide passive protection for Safety Related cables. The barriers do not interfere with the intended function of any safety related equipment or cables.

C. The implementation of this modification did not reduce the margin of safety as defined in any Technical Specification.

The margin of safety was not impacted by the installation of the barriers (wraps and/or marinite boards). These barriers provide passive protection for safety related cables to ensure equipment operation. Technical Specifications rely on active components to establish a safety margin, and therefore the bases are not affected by this modification.

EWR 90-042, A-E, G-J

REPLACEMENT OF AUXILIARY BUILDING AND FUEL BUILDING ROOFS
NORTH ANNA UNITS 1 & 2

DESCRIPTION

The existing built-up roofs on the Auxiliary and Fuel Building roofs were replaced with a single-ply membrane roof system. During roof replacement, existing equipment and materials nc longer needed on the roof were permanently removed. These items included removal of loose channel steel for supporting a light stanchion and antenna, temporary power cables to Fuel Building lights, and an abandoned security box.

In order to remove the channel material from the roof, new supports were required for the Emergency Communication Antenna and light stanchion. Two new supports for the Emergency Communication Back-Up Antenna were installed on the west side of the Auxiliary Building. A new support for the light stanchion was installed on the south wall of the Service Building. Location for these supports was based on maintaining fire zone separation for the antenna and maintaining security illumination levels for the light stanchion.

Security lighting on the south wall of the Fuel Building had the temporary feeder cable removed. New permanent conduit and cable was installed for this lighting circuit.

An abandoned security box was removed. This box had been used to house a fence sensor which was previously removed.

SUMMARY OF SAFETY ANALYSIS

A Safety Analysis was performed due to a UFSAR change. UFSAR section 3.8.1.1.5 stated the roof was a gravel-covered, built-up roof. This EWR removed the existing gravel ballast down to the deck and installed a new single-ply membrane roof system. The gravel ballast is not required for the new single-ply membrane roof design.

This EWR will not create an "unreviewed safety question" as defined in 10 CFR 50.59.

A. The implementation of this work does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

   The SAR documents were reviewed, the LOCA, MSLB, and Fuel Handling Accidents were identified and evaluated. The ability to shelter safety-related components in the Auxiliary and Fuel Buildings was not adversely affected. The integrity and ability to contain radioactivity of the Auxiliary and Fuel Buildings was maintained. Effectiveness of the station emergency communication system was not compromised.

B. The implementation of this work does not create a possibility for an accident or a malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

   Roof replacement is a routine maintenance activity with appropriate procedures and guidelines controlling its total implementation. Implementation of the roof replacement activity did not compromise building structural features required for missile protection and seismic integrity. The new single-ply membrane roof design did not adversely affect the building ability to shelter safety-related components. The Spent Fuel Pool was covered during replacement of the Fuel Building roof to prevent debris from dropping into the pool.

C. The implementation of this work does not reduce the margin of safety as defined in any Technical Specification.

   This EWR replaced the old, deteriorated roofs of the Fuel and Auxiliary Buildings with a new single-ply membrane roof system. No Technical Specification Limiting Conditions for Operation or Bases were involved during implementation of this activity. The ability of the buildings to shelter safety-related equipment was not compromised.

EWR 90-076A

Provide Installation Instructions
for Durable Gasket
North Anna / Unit 1

DESCRIPTION

The rupture discs, 1-BR-RD-105A & B, for the "A" Gas Stripper were modified to eliminate leakage where the disc contacted the housing block. This was accomplished by the installation of a Durabla gasket at this joint, which was originally designed for a metal to metal joint to provide leak tight seal.

SAFETY ANALYSIS SUMMARY

The addition of the gasket to the rupture discs ensured a leak tight seal without adversely affecting the operation of the rupture disc or the seismic integrity of the line. The modification did not change the function or pressure retaining capability of the component/system.

The modification did not change the operating methods or accident analysis described in the UFSAR and the margin of safety as set forth in the Technical Specifications was not affected.

EWR 90-121, A, B, & C

DRIVE CHAINS FOR THE EAST AND WEST HOIST
OF THE MOVABLE PLATFORM CRANE 01-MH-FH-13
NORTH ANNA UNIT 1

DESCRIPTION

The possibility exists for the drive chain or pieces of the drive chain to break off or slip off of the sprockets and fall into the spent fuel pool from the East and West Hoist (Serial 700 Load Lifter) of the Movable Platform Crane 01-FH-MH-13.

A chain guard was installed on the East and West Hoist of the Movable Platform Crane 01-FH-MH-13 to prevent debris falling from the hoist into the spent fuel pool.

SUMMARY OF SAFETY ANALYSIS

This design change in accordance with EWR 90-121, 90-aWE, 90-121B and 90-121C does not create an "unreviewed safety question" as defined in 10 CFR 50.59.

A. The implementation of this modification does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

   The chain guards are of light weight in nature, being fabricated from 16 gage stainless steel perforated sheet metal and are securely attached to the Hoist Motor support plates to preclude failure under a seismic event. The installation of the above chain guards will not affect the operational characteristics of the Hoists or the Movable Platform Crane. The chain guards are to prevent the chain or pieces from falling into the spent fuel pool. Therefore, this modification is not expected to increase the probability or consequences of an accident such as a seismic event or the malfunction of the movable platform crane.

B. The implementation of this modification does not create a possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis report.

The Chain Guards for the Drive Chains of the East and West Hoists of the Movable Platform Crane 01-MH-FH-13 are non-safety. However, to preclude failure under a seismic event they are installed to withstand design seismic forces. This installation of chain guards is will not affect the operation of the hoists or the Movable Platform Crane. Therefore, this modification will not create a possibility for any other accident or malfunction and will not jeopardize any equipment, system or procedure required to operate the plant safely and achieve and maintain safe shut down or to prevent the release of radiation for any condition.

C. The implementation of this modification does not reduce the margin of safety as defined in any Technical Specification.

The Chain guards installed for the drive Chains of the East and West Hoists of the Movable Platform crane 01-MH-FH-13 are of light weight in nature and are insignificant in comparison to the overall weight of the crane or the weight lifted by the crane. Thus, the margin of safety will have virtually no effect due to the chain guards. Therefore, the Technical Specifications bases remain unaffected due to this modification.

EWR 90-123B

Replacement Speed Increaser
Gearbox Breathers
North Anna / Unit 1

DESCRIPTION

To prevent oil vapors from the speed increase gearbox from being drawn into the motors of the charging pump this EWR installed a new inspection cover in the charging pump speed increaser gearbox. The replacement covers were similar to the original having the same form, fit and function and were manufactured by the original equipment vendor.

The new design offered an improved design which was intended to change the oil mist back into the reservoir and prevent significant carryover from being drawn into the motor. Significant oil misting had increased the frequency of motor disassembly required for cleaning.

SAFETY ANALYSIS SUMMARY

No unreviewed safety question exists because this modification does not affect the operation of the charging pump. The new breather cap allows the gear housing to be vented while reducing the likelihood of oil misting which has lead to fouling of the pump motors. The changing does not increase the likelihood or severity of and previously analyzed event and cannot create any new accident not previously analyzed.

EWR 90-132,A

Replacement of Feedwater MOV Trim
to Improve System Head
North Anna / Unit 1 & 2

DESCRIPTION

This modification removed the existing Caravtrol trim from 01-FW-MOV-100B and 02-FW-MOV-200B and replaced it with standard trim. With the standard trim installed, the valve has a smaller pressure drop and a higher CV. The modification also adds to the total head of the system. The trim which was added is identical to that installed in 01-FW-HCV-100B and 02-FW-HCV-200B.

The flow conditions were evaluated and the trim change was implemented to provide additional system margin. Additional system margin reduces the likelihood that normal pump wear will render the pumps incapable of meeting the Technical Specification surveillance acceptance criteria.

SUMMARY OF SAFETY ANALYSIS

This modification increased the total head of the system and therefore improved system performance. The materials of the new trim equals or exceeds the design requirements of the trim previously installed. The replacement trim design is used on similar components elsewhere in the system such that there is no increase in the potential or consequences of a previously analyzed event. Also, the possibility of an new accident nor previously analyzed in the safety Analysis report is not increased.

EWR SUMMARY

EWR 90-171, A

DESCRIPTION

A study was performed of the liquid waste system which was originally designed to accommodate the radioactive wastes produced from both units. After the plant began operation, liquid waste processing demands indicated that the 6 gpm capacity of the evaporator system was inadequate. The evaporator system was abandoned in favor of a liquid waste processing system utilizing an ion exchange and filtration process. The original evaporator, clarifier and flatbed filter are no longer used although they are still installed.

The original system also included an Urea Formaldehyde Solidification System. Use of this system had various shortcomings, particularly the unexpected large amount of free liquid. This type of operation was abandoned in favor of using various vendor supplied systems utilizing cement for solidification.

The study of the system recommended that components of the high level waste system, including the clarifying system, flatbed filter system and the catalyst tank of the solid waste subsystem be abandoned in place. Parts of the Urea Formaldehyde Solidification System, which are highly contaminated were recommended to be removed.

All components identified in the study (40) were abandoned in place by Engineering Work Request 90-171. All affected documents were identified and updated to reflect the status of the equipment. Operations drained and isolated the equipment as necessary to insure that they no longer function as a system pressure boundary.

SUMMARY OF SAFETY ANALYSIS

Two of the components abandoned were listed as safety related and several others were discussed in the UFSAR. A safety evaluation was performed per 10CFR50.59. It was determined that an "unreviewed safety question" was not created as defined in 10CFR50.59.

A. The implementation of this equipment abandonment does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

All abandoned equipment has been replaced with other liquid waste processing systems more capable of handling the waste created by both units. This change has no impact on any systems which are important to safety.

B. The implementation of this change does not create a possibility for an accident or a malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

The equipment being abandoned has not been in service for years. This change will drain some of the equipment so that it is no longer part of any system boundary. This change to the liquid waste system is mainly for documentation of the abandonment only. No possibility of a different type of malfunction or accident will be created.

C. The implementation of this modification does not reduce the margin of safety as defined in the basis of any Technical Specification.

The components to be abandoned are already out of service. The work required was primarily document update. The small amount of component draining required would not affect any of the Technical Specifications or the margin of safety. This system is not required for the safe operation or shutdown of the plant. It is a waste processing system used to reduce the amount of radioactive waste requiring disposal.

EWR 90-177, A, B
LADDER STORAGE RACKS FOR AUX BLDG
NORTH ANNA UNITS 1 & 2

DESCRIPTION

In the past, work ladders were stored haphazardly between HVAC ducts 1-HV-F-8a, 8b, 8c, and the adjacent concrete wall. This condition made it difficult and inefficient to use these ladders, especially for long ladders like 12' step and 24' extension ladders that were moved between floors.

The ladder storage racks installed by this EWR will allocate ladders to each level of the auxiliary building. In general, each level has 12', 8', 6' and 4' step ladders. The 291'-10" level has double these quantities and also a 24' extension ladder due to possible usage in containments.

Ladder hangers are seismically designed and restrained per SEO calculation 1634.

SAFETY ANALYSIS SUMMARY

No plant system was changed and all systems remain operable.

The probabilities of occurrences of accidents were not increased due to the installation of ladder racks.

The probabilities of accidents of a different type were not increased due to the modification.

The margin of safety was not changed due to this modification based on original design basis.

EWR 90-197, A-E

CHEMISTRY WET LAB REMODELED TO OFFICE SPACE
NORTH ANNA UNITS 1 & 2

DESCRIPTION

The existing Chemistry Wet Lab was remodeled to provide office work stations. Remodeling included removal of existing counters, sinks, cabinets, hanging heater and ceiling panels. Installations included new lighting and ceiling panels, additional receptacles, new walls and door. The floor was leveled and carpeted, and walls painted. The existing diffuser in the small office was connected to the hot lab air system. All associated piping (air, water & gas) connected to lab counters were removed. Also included in the remodeling was the Health Physics Main Office. Here existing wall cabinets and ceiling panels were removed. GAI-tronics was relocated. Additional electrical receptacles, new ceiling panels and carpet were installed. Walls were painted. Thin gauge metal studs were attached to the adjoining diesel cubicle wall by small diameter, shallow embedded hilti bolts. No reinforced steel was cut.

SUMMARY OF SAFETY ANALYSIS

This design change will not create an unreviewed safety question as defined by 10 CFR 50.59.

A. The implementation of this modification does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment or structures important to safety, previously evaluated in the Final Safety Analysis Report.

   The safety evaluation was performed to evaluate attachment of the new wall to the Emergency Diesel cubicle wall using small hilti kwik bolts installed per NAS 1023.

B. The implementation of this modification does not create a possibility for an accident or a malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

   Seismic qualification and missile protection of 1 H Emergency diesel will not be altered by installation of small hilti bolts. No rebar was cut.

C. The implementation of this modification does not reduce the margin of safety as defined in any Technical Specification.

Attachment of a sheet metal stud, in a non-safety related area to the outside of the 1H diesel cubicle wall with small hilti bolts will not affect missile protection or seismic capabilities of the two foot thick concrete wall. Operability of safety related emergency equipment shall be maintained.

EWR 90-204, A Thru C

EDG CONTROL CIRCUIT LIGHT ASSEMBLY REPLACEMENT
NORTH ANNA / UNIT 1 & 2

DESCRIPTION

Placement of an incorrect bulb in the "Field Flash Power On" circuit has rendered the diesels inoperable in the past due to the field flash fuses being blown. The reason for this is the light bulb was of an incorrect voltage rating. The resolution to this problem was to install resistive type sockets (sockets that have a resistor in series with the bulb) in the existing socket locations. This serves to preclude any blown fuses by limiting the current to a safe value should the wrong bulb be placed in the circuit, or if a bulb should act as a "dead short." In addition to replacing the Field Flash indicating light socket, the light sockets were replaced for the "Excitor Power On," the two start circuit indicating lights and the two stop circuit indicating lights.

SUMMARY OF SAFETY ANALYSIS

This modification does not constitute an "unreviewed safety question" as defined in 10CFR50.59.

a. The implementation of this modification did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report because the replacement light sockets will function exactly the same as the existing light sockets.

b. The implementation of this modification did not create a possibility for an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report. These lights are only used for indication and the new sockets do not function any differently than the existing light sockets.

c. The implementation of this modification did not reduce the margin of safety as defined in the basis of any Technical Specification because the replacement lights meet or exceed all design requirements. They have been evaluated and found to be an acceptable replacement. The component/system will function as designed, therefore, the margin of safety has not been degraded.

EWR 90-264, A, B, C

Sight Glass For Vaccum Pumps
North Anna / Units 1 & 2

DESCRIPTION

Loop seals in Aerated Drain (VA) system (process vents system) piping lose water over time created a bypass for process vent suction. These bypass flows reduced the effective flow on the VA heater. Check valves were installed in seven of these loop seal locations to help maintain the seals and improve operation.

An additional low point in the VA piping at the low level liquid waste tanks to the process vent created an unwanted "loop seal." This loop seal created a blockage to system flow preventing "sweep flow" of the liquid waste tanks. The piping was reworked to eliminate the low point and install a drain.

SAFETY ANALYSIS SUMMARY

The change did not create an unreviewed safety question. The VA system is not safety related but the modification affected safety related structures and supports. The modification returned the system to the design condition and did not adversely impact any safety system. Therefore, the probability of consequences of any analyzed event were not affected by this change. Also, the possibility of occurrence of any unanalyzed event was not increased by the change.

EWR 90-267, A, B, and C
Replacement of 1-SW-P-8, 9A, and 9B
North Anna Unit 1

Description

The existing pump and motor skids for 1-SW-P-8, 9A, and 9B were replaced. The new skids required modifications to the motor termination boxes, and motor thermal overload settings. Existing termination boxes were too small to contain the connections required for the new motor. Because the new motors have different operating characteristics and current ratings, the existing thermal overloads required either replacement or new settings. Safety Evaluations 90-SE-MOD-087 (1-SW-P-8) and 90-SE-MOD-100 (1-SW-P-9A, and 9B) were written to evaluate any potential impact by this modification.

Note: Although this EWR did modify 1-SW-P-8, a subsequent DCP, 90-12 replaced 1-SW-P-8 during the 1991 Unit 1 Refueling Outage. As such, the information provided in EWR 90-267 pertaining to 1-SW-P-8 is void.

Summary of Safety Analysis

This design change in accordance with EWR 90-267, A, B, and C does not create an "unreviewed safety question" as defined in 10CFR50.59.

A. The implementation of this modification does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

   The pump/motor skid installed by this EWR is only used during the mitigation of an accident for monitoring purposes. Redundant instrumentation is available and no automatic safety functions are controlled by this pump/motor skid. The new pumps are identical to the existing. The new motors perform the same function as the existing and do not impact operability of the pump.

B. The implementation of this modification does not create a possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

   No safety system or function is altered by this modification. The new pump/motor skid performs the same function as the existing. The replacement motor meets all design criteria for the application. No automatic safety functions are controlled by this equipment.

C. The implementation of this modification does not reduce the margin of safety as defined in any Technical Specification.

The replacement pump and motor meet or exceed all design requirements. Operation of any safety system or function will not be altered by this modification. No automatic safety functions are controlled by this equipment.

EWR SUMMARY

EWR 90-280,A,B,C,D,E,F

Description

A study was conducted and data complied which identified that the previously existing pressurizer heater cables were undersized and required replacement. To enhance reliability, the following improvements in the pressurizer heater system were implemented by this EWR.

The pressurizer heater cables inside the containment building were replaced with larger cables. No new cable trays or raceways were added inside of the containment building.

The pressurizer heater cables outside the containment building were replaced with larger cables. New cable trays replaced the existing conduits which were not large enough to contain the larger cables.

The measured current had been recorded to be approaching and/or exceeding the existing fuse rating. The heater fuses were replaced with current limiting fuses. The current limiting fuses have a faster response than the existing fuses. The replacement of these fuses add additional reliability to the heater circuit by reducing the random fuse failures due to accelerated aging of the fuses.

The circuit breakers in the pressurizer heater panel boards were replaced with 1E temperature compensating circuit breakers. These temperature compensating circuit breakers are similar to the breakers installed in Unit 2. This replacement enhanced maintenance and reliability since the components between both units are similar and compatible with the new larger cables.

Safety Analysis

This modification does not involve an unreviewed safety question as defined by 10CFR50.59. The implementation of this EWR has no effect for safe shutdown of the plant.

This EWR will not affect Virginia Power's commitment to NUREG-0737A, which requires that the pressurizer heaters are to be powered from a reliable source of power, but specifically precludes the pressurizer heater cables from the separation requirements of IEEE 323.

<u>Safety Analysis (Con't)</u>

The implementation of this EWR has no negative impact to the operations of the plant.

The Technical Specifications and the UFSAR have been reviewed for applicability to this EWR. It has been determined that they are unaffected by this modification.

EWR 90-330 A,B,& C

EFFLUENT DISCHARGE FLOW RATE MONITORING
NORTH ANNA UNIT 1 AND 2

DESCRIPTION

This modification replaced the Liquid Waste System flow transmitter 1-LW-FT-104 because it was obsolete and spare parts were difficult to find. Additionally, there was no in-house capability to calibrate the transmitter. A Rosemount flow transmitter was installed along with the associated tubing and wiring connections for the new transmitter. Additionally, a SOV controlled by a local hand switch was added to provide a method to clear an obstructed Liquid Waste sample valve using instrument air.

SUMMARY OF SAFETY ANALYSIS

This design change, in accordance with EWR 90-029, A, does not create an "unreviewed safety question" as defined in 10 CFR 50.59.

A. The implementation of this modification does not increase the probability of occurrence or the consequences of any accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

   Replacing the flow transmitter of the Liquid Waste effluent discharge monitoring system provides more accurate and reliable method of monitoring and recording the discharge flow rates and does not adversely impact existing controls as related to monitoring and/or protection.

B. The implementation of this modification does not create a possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report.

   This portion of the Liquid Waste monitoring system is non-safety related and a passive recording system. The modification does not create any new accidents.

C. The implementation of this modification does not reduce the margin of safety as defined in any Technical Specification.

The margin of safety is not impacted since the function of this system is not in Technical Specification or Safety Related. Modification of the flow indication provides more accurate and reliable flow indication.

EWR 90-335, A

Replacement For 1" Pacific Steel Gate Valve
North Anna / Unit 1

DESCRIPTION

Gate valve on the 1-RS-64 is located on the pump can drain line, 1"-RS-27-153A, of the Outside Recirculation Spray Pump 1-RS-P-2B. The existing valve was a Pacific 150# threaded gate valve which had developed a body to bonnet leak. The valve was replaced by a Velan 600# bolted bonnet gate valve by the EWR 90-335. Addendum A relocated the valve with in the drain line to facilitate installation.

SUMMARY OF SAFETY ANALYSIS

The EWR replaced the leaking valve with one that meets or exceeds the design requirements of the existing Pacific valve. The replacement valve does not alter the seismic integrity of the Recirculation Spray System. The system still operates as originally designed.

An unreviewed safety question does not exist since the change did not:

1. Increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety, as previously identified in the UFSAR.

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

3. Reduce the Margin of safety as set forth in the technical Specifications.

EWR 90-357

Replace 1500 Pound Schedule 160
Flange with Schedule 80 Flange
North Ann / Units 1 & 2

DESCRIPTION

Valves 2-RC-203 and 2-CH-394 required new Sockweld flanges when replaced. NAS-1009 specified Schedule 160 flanges which were not in stock. Schedule 80 flanges of the same material, which were in stock, were used after evaluation found them to be an acceptable replacement. These components are installed in welded piping systems and the flanges are used with a blind flange as an end cap.

SAFETY ANALYSIS SUMMARY

The safety related flanges were of the same material as specified in NAS-1009 and the different schedule of flange did not affect the system configuration of the design basis for the systems. Therefore this modification did not increase the chances of or consequences of an accident previously evaluated in the UFSAR.

The Schedule 80 flanges exceed the pressure/temperature requirements of the RC System and also maintain the same ANSI pressure class of 1500 pounds.

EWR 90-366

Determine a Suitable Replacement for
Walworth Gate Valve
North Anna / Unit 2

DESCRIPTION

The "C" steam generator isolation valve, 2-MS-95, had been repaired numerous times and needed to be replaced. The valve was a 3" Walworth Co. gate valve. Anchor Darling manufactures a valve that is the same as the Walworth in terms of construction and function. The new valve is a safety related ASME class 2 valve which meets the temperature/pressure ratings of the piping in which it was installed. The Anchor Darling valve was an acceptable replacement for the Walworth valve.

SUMMARY OF SAFETY EVALUATION

This valve replacement does not create an unreviewed safety question as defined in 10CFR50.59. The implementation of this modification does not increase the possibility of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR.

The new valve meets all design requirements of the original valve. Seismic qualifications of the valve piping has not been affected.

The valve is a normally open manual valve. Its safety function is as a system pressure boundary. All flow paths for the main steam system remains unchanged.

Possibility for an accident or malfunction of a different type than previously evaluated in the UFSAR is not created.

The margin of safety in the bases for any Technical Specification is not reduced.

EWR 90-374

Install Additional Unions for Seal Cooling on Aux Feed Water Pumps North Anna / Unit 1 & 2

DESCRIPTION

Unions on the Auxiliary Feedwater Pumps (motor driven) seal cooling lines did not allow sufficient clearance when removing the pump and impeller. In fact, the pump casing cannot be removed without interfering with the seal line and therefore must be cut each time a casing is removed.

To correct this problem, the union was replaced by a flanged connection and an additional flanged connection added. These connections help facilitate pump maintenance.

SAFETY ANALYSIS SUMMARY

No unreviewed safety question exists for the union installation. The flanges didn't affect the performance of the Auxiliary feedwater pump and the pump performed as before.

The flanges added additional weight to the line, however this weight was acceptable per CE calculation 850.

An unreviewed safety question does not exist since the configuration functions exactly as before, and the potential for an accident is not increased and the margin of safety is not reduced.

EWR 90-400, A

Remove CO_2 Bottles From Incore Drive
North Anna / Unit 1 & 2

DESCRIPTION

The CO_2 Gas Purge System for the Incore Detector Drive System was removed. The CO_2 Gas Purge System was of little benefit in preventing corrosion to the incore thimbles. The required maintenance (changing the bottle once the gas is expelled) and associated man-rem exposure was unwarranted. Westinghouse and NAPS Engineering concurred that the system could be removed without harming performance of the incore director. The Co_2 gas Purge System was removed in phases. The CO_2 bottle and regulator were removed by EWR 90-400 and 90-400A. An addendum was written to provide for the removal of the solenoid valve and CO_2 tubing up to the ten path transfer devices.

SAFETY ANALYSIS SUMMARY

The possible corrosion of the incore thimbles as a result of this modification was the main concern considered. The removal of the incore CO_2 Gas Purge system does not increase the possibility of corrosion of the thimbles.

The CO_2 Purge Gas System is not safety related. Removal of the system does not increase the probability nor does it present the possibility of another type of accident than previously evaluated. The Purge Gas System is not required by Technical Specifications and is not currently specified in new systems according to Westinghouse.

EWR 90-406
LOSS OF POWER TROUBLE ALARM TO ICCM CABINET
TRAINS A AND B
NORTH ANNA POWER STATION

DESCRIPTION

Loss of power to the Inadequate Core Cooling Monitor (ICCM) cabinet trains "A" and "B" (AC or DC) would not bring in a trouble alarm, as configured in the Hathaway system for the main control room annunciation.

SUMMARY OF SAFETY ANALYSIS

The ICCM system is a self-contained monitoring device composed of two identical microprocessor based monitoring channels. Each channel is capable of monitoring various analog and digital inputs, performing calculations, providing data for information display, and actuating alarm outputs when preset trip points are exceeded.

The ICCM is configured as two redundant trains, "A" and "B". There is an independent ICCM for each unit.

The ICCM contains a contact output board, which provides eight form C dry contact outputs to field wiring under the control of the system multibus controller. The multibus controller will open or close the dry C contacts upon certain conditions in the ICCM cabinet. The multibus controller is currently configured to energize a coil and close a set of dry C contacts on the contact output board when the ICCM cabinet is operating. However, this contact is not closing under these conditions. This contact closure output from the ICCM cabinet is an input into the Hathaway system. The Hathaway system is configured to provide an annunciation alarm in the control room (Annunciator panel 1B and 2B, windows 1 and 2) upon a closed set of contacts. The annunciation windows have a reflash capability. A loss of power, deadman error, hydraulic isolator, and system diagnostic are connected to the reflash window. Any one of these alarms will cause an annunciation and more than one alarm will cause a reflash annunciation alarm. By the contact not operating correctly, a loss of power (AC or DC) on the power supply module in the ICCM will not cause an annunciation in the main control room.

The field wiring to the contact output board needs was changed and connected to a normally closed set of contacts. In addition, the software of the multibus controller was revised to energize a coil and open a set of dry C contacts upon power up of the ICCM cabinet. Thus, when the ICCM cabinet loses power, the contacts close and cause an alarm.

EWR 90-406
LOSS OF POWER TROUBLE ALARM TO ICCM CABINET
TRAINS A AND B
NORTH ANNA POWER STATION

Implementation of this design change did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the UFSAR because the wiring modification does not affect the operation of the ICCM cabinet trains "A" and "B". The modification will only affect the annunciation of power loss (AC or DC) in the ICCM cabinet. This annunciation will still alarm when loss of plasma display is detected, which is shortly after loss of AC or DC power to the ICCM cabinet.

The implementation of this design change did not create a possibility for an accident or a malfunction of a different type than any evaluated previously in the UFSAR because the wiring modification will only affect an annunciation alarm in the control room for a system that provides monitoring capability only. The annunciation will aid the operator in evaluating the condition of the reactor core cooling system.

The implementation of this design change did not reduce the margin of safety as defined in the basis of the Technical Specification of the Reactor Core Cooling System because the design basis of the system is preserved. The wiring modification will provide annunciation in the control room when loss of power (AC or DC) occurs in the ICCM cabinet.

EWR 91-030, A

GUARD PLATES TO LIMIT SWITCHES
OF MANIPULATOR CRANE 01-MH-CR-05
NORTH ANNA UNIT 1

DESCRIPTION

Limit Switches LS-6, LS-15, and LS-16 mounted on the Manipulator Crane, 01-MH-CR-05 in the Unit 1 Containment had the potential for accidental jarring due their location near the walkway platforms. Guard plates (11Ga. X 6" X 1'-2") were installed, in accordance with EWR 91-030 and subsequent addendum "A" to the EWR, attached to the Crane Bridge Steel to protect these limit switches from accidental jarring. Safety Evaluation, 91-SE-MOD-015 was performed to evaluate the effec_ of the installation of guard plates for the limit switches.

SUMMARY OF SAFETY ANALYSIS

This design change in accordance with EWR 91-030 and 91-030A does not create an "unreviewed safety question" as defined in 10 CFR 50.59.

A. The implementation of this modification does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

The installation of guard plates to preclude accidental jarring of the limit switches does not increase the probability of fuel handling accident inside containment by the failure of the refuelling manipulator crane. In fact the modification ensures proper operation of the refuelling manipulator crane and consequently prevents fuel handling accident inside containment by protecting the limit switches from accidental jarring.

B. The implementation of this modification does not create a possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis report.

The refuelling manipulator crane, as the name implies, is used only during refuelling operation. The installation of guard plates to the limit switches is non-safety. This activity does not jeopardize any equipment, system or procedure required to operate the plant safely and to achieve and maintain safe shutdown or to prevent the release of radiation for any condition.

C. The implementation of this modification does not reduce the margin of safety as defined in any Technical Specification.

The Technical Specification bases require the operability of the refuelling manipulator crane. The installation of guard plates to the limit switches does not affect the operability of the crane. In fact the guard plates protect the limit switches from accidental jarring and ensure proper operation of the crane, thus meeting the Technical Specification bases. Therefore, the Technical Specification bases are not affected by this modification.

EWR SUMMARY

EWR 91-069,A

Description

These EWRs were to install covers for Unit 1 and Unit 2 simulator CDA switches.

Safety Analysis

Selection for switch covers involved communication with Operations, Training and Human Factors Engineering. The A-B covers were chosen through process of elimination. Having been used previously for vertical board application between brackets QS-MOV-102A and B (has been used previously without negative feedback). The covers are inexpensive, easily installed and have no impact on seismic qualifications. Human factors evaluation by Innsbrook concurs with switch cover type. Covers do not affect safety operation of the switches. No unreviewed safety questions exists as determined by VPAP-3001.

EWR 91-090, A

Replacement Of Motor For 1-SW-MOV-113A
North Anna / Unit 1

Description

The actuator motor for 1-SW-MOV-113A was found grounded during routine maintenance and had to be replaced. A replacement motor was found but it had a different ampere rating and frame number. The EWR evaluated the acceptability of the replacement and provided the necessary procedure for replacement and post modification testing.

The evaluation determined that this was a like for like replacement and that the differences in motor characteristics were minor. The most important of the different characteristics was the slightly higher nominal running amperes (0.6 vs. 0.45). This required adjustment of the thermal overload (O/L) and testing of the overload. The acceptance criteria of the O/L testing was as follows:

1) 3 seconds minimum trip time at (worst case voltage) locked rotor (LR) amperage. This time would allow the MOV to accelerate to rated speed and unseat as well as to ensure that the motor can reach locked rotor torque.

2) 10 second maximum trip time at (worst case voltage) LR amperage. This was determined to be a conservative value to prevent motor damage for class B insulation or better.

3) The O/L was tested at the amperage equivalent to 200% rated running torque of the MOV to ensure it would not trip within 50 seconds. This was analogous to the MOV stroking at least two times @ 200% rated (running) torque. This criteria was conservative and was intended to prevent inadvertent trips due to brief periods of increased load.

Summary Of Safety Analysis

This modification was reviewed to determine if an unreviewed safety question as defined in 10CFR50.59 exists. The new motor was of sufficient capacity to deliver the design torque which would deliver enough thrust to perform the designed safety function. Post modification testing verified the desired performance of both the motor and the O/L. Consequently, no unreviewed safety questions are known to exist as a result of the proposed change. The result of this evaluation can be stated as follows:

1) The implementation of this Design Change did not increase the probability of occurrence or the consequences of an accident or malfunction of equipmentimportant to safety and previously evaluated in the UFSAR. The modification was a like for like component level changeout. The fundamental design and operation of both the component and system were unaltered.

2) The implementation of this modification did not create a possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR. Since the component and system were left with the same performance characteristics the SAR accident and malfunction scenarios remain valid.

3) The implementation of this modification did not reduce the margin of safety as defined in the basis of the Technical Specifications. Because system and component design parameters were not altered, their contribution to the margin of safety was not diminished.

EWR 91-112B
SETPOINT DOCUMENT REVISION
SECTION G2
NORTH ANNA POWER STATION

STATEMENT OF THE PROBLEM

The North Anna Setpoint Document (NASD) was not correct with regard to power protective relays. The power protective relay settings are applied to the relays by the System Protection-Control Operations group. The settings provided by the SPCO group and other setpoint calculations needed to be incorporated into section G2 of the NASD.

IMPLEMENTED RESOLUTION

Engineering worked closely with Control Operations to obtain an accurate, relevant NASD to replace section G2. The information was taken from the "White Sheets" provided by the System Protection-Control Operations group. Other changes included new setpoint calculations, a new Q.A. column that replaced the rev. column, and deleting setpoints for spare equipment.

Updating the Setpoint Document to reflect the existing settings did not increase the probability or the consequences of an accident or malfunction of the equipment important to safety. In accordance with STD-GN-0030, calculations are required to update the Setpoint Document. The changes did not adversely impact the Technical Specifications required equipment nor caused revision of the UFSAR.

Updating the Setpoint Document did not create the probability of an accident or malfunction of a different type than any evaluated previously in the UFSAR because no setpoints were changed, and therefore, no equipment necessary for accident mitigation or safe shutdown was modified.

The updating of the Setpoint Document to reflect existing settings did not reduce the margin of safety as defined in the bases of any Technical Specification.

EWR 91-129 & 129A

REPLACEMENT OF BUMP BARS FOR STATIC INVERTERS NORTH ANNA UNITS 1 & 2

DESCRIPTION

During the 1991 North Anna Electrical Distribution System Functional Assessment (EDSFA), steel fabricated bump bars were observed to be installed across the face of the static inverters for the vital busses. Upon further investigation, it was learned that these bump bars were installed without benefit of an engineering review. The proposed resolution recommended removing the existing bump bars, fabricating and reinstalling new seismically qualified bump bars for each inverter panel. New bump bars were fabricated out of ASTM A 36 carbon steel and attached to the face of the inverter panel with two Round Head, No. 10-32 X 1" long, Type A Thread Cutting, Zinc Plated Screws per bump bar. The affected inverter panels included: 01/02-VB-I-01, 02, 03, 04 and 01-EP-IV-02.

SUMMARY OF SAFETY ANALYSIS

The decision to re-work the bump bars was driven by the questionable appearance of some of the bump bar's fabrication, as well as the need to document the material and installation for such seismically qualified equipment. In addition, some of the bump bars for the side-by-side inverter panels spanned across both inverter panel faces, structurally linking the two panels together. This linked condition was not originally evaluated when the panels were purchased. At the time of purchase, these inverter panels were individually seismically qualified, via shaker table testing. No bump bar existed on them at the time of testing. The engineering evaluation, included in this EWR, has demonstrated that the addition of the new individual bump bar, onto each inverter panel, has added an insignificant amount of mass to the inverters. The additional mass was shown to be minor and the bump bars are rigidly attached to the panels such that the original shaker testing is still considered to be valid.

Bump bars were installed to protect the front panel buttons from being inadvertently bumped, hence the operation, control and output of the inverter panel remains unchanged. This engineering evaluation has accounted for seismic loading in

the design of the new bump bars. As such, the presence of the bump bars do not increase the probability for a seismic event.

Similarly, the consequences for failure of the inverters have not been increased, since the bump bars have been evaluated to resist seismic loads. Seismic loads will not create failure in the bump bar leading to seismic failure of the inverter panel, or some other failure mode not previously evaluated.

In as much as the original shaker table testing is still valid, the margin of safety remains unchanged for these static inverters. Therefore, the margins of safety established in the design bases of the Technical Specifications have not been reduced by this modification.

EWR 91-169

New Flygt Sump Pump Installed
North Anna / Units 1 & 2

DESCRIPTION

The containment sump pumps had been failing frequently. The failures were caused by motor burn-up due to exposure of the pumps to fluid temperatures in excess of rated design. The pumps that existed (Flygt, B-2095 or BS-2120) were rated for pumped fluids of 105 Degrees. Sump fluid temperatures can often exceed that value, especially during the outages when the sump pumps operate frequently. The pumps were replaced with Flygt Model BS-2102 (WL) pumps which were rated for 195 Degrees pumped fluids. The hydraulic performance characteristics of the Model BS-2102 (WL) pumps are almost identical to the pumps previously used.

SAFETY ANALYSIS SUMMARY

The new pumps have the same performance characteristics as the pumps that were replaced, but are designed to last longer due to a higher temperature rating.

In the course of providing a resolution to this EWR, it was discovered that a discrepancy existed between the containment sump pump design data of UFSAR Table 9.3-3 and what was actually installed. Deviation Report N-91-887 was issued to document this discrepancy and this EWR was used to update the UFSAR to revise the sump pump design data of the replacement pump.

The replacement of the sump pumps did not constitute an unreviewed safety question as defined in 10CFR50.59 since it did not:

Increase the probability of an occurrence or the consequence of an accident or malfunction of equipment important to safety, or create the possibility for an accident or malfunction of a different type than had been previously evaluated in the Final Safety Analysis Report. The margin of safety is not reduced as set forth in the Technical Specifications, since the pump functions identically to the original and should have improved reliability.

EWR 92-038

Drawing Shows Leak Monitoring Pressure Indicators Which Are Not Installed in Field
North Anna / Unit 2

DESCRIPTION

As part of the Configuration Management project, a walkdown was conducted of equipment in the Containment Leakage Monitoring System. The Dry Air Cylinder and pressure gauges shown on the drawings were not physically installed in the field.

The problem was discussed with the System Engineer for the Containment Leakage Monitoring system who indicated that the Dry Air bottle and associated gauges were not used to perform the normal operating check of containment leakage, nor was it used for the periodic (Type A) tests. The system was believed to be originally installed in the plant as part of the "reference volume" method of leak rate testing and was described in the North Anna UFSAR.

The current methods used are the absolute method and the superimposed method. The reference volume method was never used and is no longer acceptable as a means of leak testing. The Unit 1 and 2 flow diagrams and associated documents were updated to show the current configuration and the UFSAR was updated to correctly describe methods used for measuring containment leakage.

SAFETY ANALYSIS SUMMARY

An unreviewed safety question does not exist. The absolute and superimposed methods of containment air in leakage monitering is more accurate than the original plant design method of performing the Containment Leakage Rate Calculation.

The probability or consequences or possibility of an accident were not increased.

The margin of safety as set forth in the Technical Specifications were not affected.

Accidents of a different type than previously analyzed were not possible.

EWR 92-092
SETPOINT CHANGES FOR RCS REDUCED TOTAL FLOW
NORTH ANNA UNIT 1

DESCRIPTION

Based on projections of Unit 1 steam generator tube plugging levels, it was calculated that the RCS total flow rate would not meet the current Technical Specification (TS) minimum requirement. Technical Specification Change Request Nos. 263 and 266 were submitted to revise the minimum flow rate to 268,500 gpm. A reduction in the maximum reactor power to 95% was included in the TS change to provide margin in the analysis.

Based on review of the proposed Tech Spec Change, it was determined that the North Anna Setpoint Document (NASD) and Precautions, Limits and Setpoints (PLS) Document required revision to implement this Technical Specification revision. The affected setpoints revised include the Overtemperature ΔT, Overpower ΔT, NI (Power range, high range high level), and Rodstops (power range high flux level). The setpoint values were revised in the NASD and PLS to incorporate the revised values identified by the TS revision.

SUMMARY OF SAFETY ANALYSIS

The revision of the North Anna Setpoint Document and PLS to incorporate the Technical Specification revision for reduced total flow does not constitute an "unreviewed safety question" as defined in 10CFR50.59 because:

a. The implementation of this modification does not increase the probability of occurrence, or the consequences of an accident or malfunction of equipment important to safety and previously evaluated since the operating characteristics and accident analyses which support Unit 1 Operation was fully assessed and documented in the Technical Specification Change Requests and was approved prior to implementation. The proposed changes to the setpoints for the Technical Specification change does not impact either equipment or operating conditions that are considered in determining the probability of occurrence for any of the UFSAR Chapter 15 accidents. The reduction in RCS flow has the potential to increase the consequences of the UFSAR Chapter 15 accidents, but the setpoint revisions compensate for this to ensure design limits are met and consequences remain unchanged.

SUMMARY OF SAFETY ANALYSIS (Con't)

b. The implementation of this modification does not create a possibility for an accident or a malfunction of a different type than any evaluated previously. The impact of the Technical Specification Change was fully assessed in the assciated analysis submitted wit the change. These setpoint changes implement the limiting conditions created by the Technical Specification Change. The setpoint changes does not create any new or different accident initiators.

c. The implementation of this modification does not reduce the margin of safety. The impact of the setpoint changes is bounded by the analysis completed by the Technical Specification Change, and this analysis was previously approved prior to implementation. This evaluation shows that all applicable equipment design and safety analysis criteria are met. Implementation of these changes were completed using standard industry practices and procedures that are bounded by the existing analysis.

EWR 92-112

CHANGE SETTINGS U. V. RELAYS H & J BUSES
NORTH ANNA / UNIT 2

DESCRIPTION

A Technical Specification Amendment, No. 134, from Change Request No. 251, was approved November 29, 1991. This Amendment involved changes to the Emergency Bus Degraded Voltage and Undervoltage Setpoints, and was approved with the provision that the setpoint changes would be implemented at the next refueling outage for each Unit. The Loss of Voltage Relays and Degraded Voltage Timer were reset during the Unit 2 refueling outage in order to comply with Technical Specification Amendment No. 134. This was done using approved maintenance procedures which were revised to show the new settings. The Setpoint Document, UFSAR and Station Drawings were changed upon completion of this DCP.

The following relays were reset:

62 - 2H1/2J1
27 - A,B,C - 2H3
27 - A,B,C - 2J3
62B - 2H3/2J3

SUMMARY OF SAFETY ANALYSIS

This modification does not constitute an "unreviewed safety question" as defined in 10CFR50.59.

a. The implementation of this modification did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the Final Safety Analysis Report.

   This modification reset certain existing undervoltage detection relays to enhance compliance with Technical Specifications. These relays were reset during a refueling outage; the new setpoint are not part of the primary protection setpoints.

b. The implementation of this modification did not create a possibility for an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report.

This modification changed only the setpoint of existing undervoltage relays, and the work was performed in accordance with approved station procedures which have been used in the past. Additionally, this work was performed during a refueling outage.

c. The implementation of this modification did not reduce the margin of safety as defined in the basis of any Technical Specification.

The setpoint was changed to comply with a Tech Spec Amendment 134 approved November 29, 1991. The Amendment used GDC methodology and calculations methodologies from GN-0030 for single element setpoints; these setpoints provide additional operating margins for loads to be added to the emergency buses. These setpoints are not considered as primary protection setpoints.

EWR 92-124

Provide A Revision To The Setpoint Document For Rising Stem MOVs
North Anna / Unit 1&2

Description

Recently performed fundamental calculations and changes in MOV comprehensive diagnostic test equipment made the existing Setpoint Document (NASD) data obsolete. This EWR incorporated the fundamental calculation results and accommodated the different test equipment accuracies while compiling new thrust bands for the NAPS safety related MOVs. The EWR summarized the fundamental calculation method, discussed the relevant current MOV concerns/design philosophy and addressed the comparison of the old NASD values versus the new.

Summary Of Safety Analysis

This setpoint change was reviewed to determine if an unreviewed safety question as defined in 10CFR50.59 exists. It found that since no modification was performed and since these setpoints are not described in the SAR, no unreviewed safety questions are known to exist as a result of the setpoint change. The result of this evaluation can be stated as follows:

1) The implementation of this Design Change did not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety and previously evaluated in the UFSAR. This was valid because no modification was performed. The SAR assumptions about equipment operation remained valid.

2) The implementation of this modification did not create a possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR. This was valid because the setpoint change enhanced reliability while maintaining original equipment /system design and operation.

3) The implementation of this modification did not reduce the margin of safety as defined in the basis of the Technical Specifications. This was valid because the bases assumes properly operating components. The enhanced reliability assured that the bases are valid.