



Progress Energy

10 CFR 50.59(d)(2)

AUG 24 2006

Serial: BSEP 06-0095

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

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Report of 10 CFR 50.59 Evaluations and Commitment Changes

Ladies and Gentlemen:

In accordance with 10 CFR 50.59(d)(2), Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., is providing a report summarizing the 10 CFR 50.59 evaluations of changes, tests, and experiments implemented during the period from April 1, 2004, to July 31, 2006. This report is provided in Enclosure 1. In addition, a summary of commitment changes for the same period, made in accordance with CP&L's commitment management program (i.e., REG-NGGC-0110, "Regulatory Commitments"), is provided in Enclosure 2.

No regulatory commitments are contained in this letter. Please refer any questions regarding this submittal to Mr. Leonard R. Beller, Supervisor - Licensing/Regulatory Programs, at (910) 457-2073.

Sincerely,

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MAT/mat

Enclosures:

1. Summary of Changes, Tests, and Experiments
2. Regulatory Commitment Change Summary Report

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Summary of Changes, Tests, and Experiments

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Title: Evaluation of Freeze Seal to Support 1-RCC-V295 Valve Maintenance

Evaluation Identification Number: RAINS 04-0746

Brief Description:

Procedurally, it is required that a 10 CFR 50.59 screen/evaluation be performed for freeze-seals prior to performance to assure a thorough understanding of the interface between the freeze and associated systems. This activity used a freeze-seal in support of repair of valve 1-RCC-V295, 1B Control Rod Drive (CRD) Pump Cooling Water Inlet Valve.

Summary of 10 CFR 50.59 Evaluation:

Loss of Reactor Building Component Cooling Water (RBCCW) with resultant plant shutdown and north Residual Heat Removal Room (NRHR) flooding are the worst case results of a freeze seal failure. Loss of the freeze seal is not expected. However, if this occurred, the worst case results would be limited to loss of RBCCW with resultant plant shutdown. This event would fall into the transient category of event and not the accident category of event. The probability that this maintenance activity would have problems such that the plant is forced to shut down is not outside of what would be expected for a maintenance activity of this significance. Restoring the 1B CRD pump to a functional status is sufficiently important to warrant this on-line repair. The limiting flow rate would be expected to flood NRHR very slowly. Sufficient administrative controls will exist such that there is negligible potential for any flooding condition that could impact CRD pump operation or any safety related equipment in NRHR. Any leakage flow will be directed such that operating equipment and standby safety equipment will not be affected. Both of the above results are bounded by loss of piping integrity considerations applicable to the non-safety related RBCCW piping in the reactor building

Plant References:

Work Order (WO) 562482

Title: 2SP-04-005, Closure of Suppression Pool to Drywell Vacuum Breaker

Evaluation Identification Number: RAINS 04-0956

Brief Description:

This new special procedure was used to attempt to close the Unit 2 drywell to torus vacuum breaker 2-CAC-X18D. That valve was found to be stuck open during periodic testing on July 29, 2004. The intent of the special procedure is to pressurize the drywell and torus to 1 psi and then release that volume through the torus and out of the 2-CAC-V7 and V8 valves.

Summary of 10 CFR 50.59 Evaluation:

This procedure does not result in operation of equipment in any manner or condition that it is not currently evaluated to perform. The procedure will be performed in order to restore the 2-CAC-X18D vacuum breaker to its correct configuration (i.e., closed) to support the pressure suppression accident mitigating function. The procedure maintains drywell pressure to less than or equal to 1 psi when attempting to close the vacuum breaker. Other existing procedures currently control drywell pressure to a 1 psi limit and caution that a plant scram will occur when pressure reaches 1.7 psi. As such, the new procedure maintains the plant within existing procedurally controlled operational parameters.

Plant References:

2SP-04-005, Closure of Suppression Pool to Drywell Vacuum Breaker

Title: Unit 1 Standby Liquid Control Troubleshooting - Air Sparging

Evaluation Identification Number: RAINS 04-0964

Brief Description:

This troubleshooting activity was considered a test that was not described in the Updated Final Safety Analysis Report (UFSAR). It included an air sparge on Unit 1 Standby Liquid Control (SLC) system while monitoring suction line vent locations for air accumulation. It also pumped solution from the pump suction line drain valves back to the SLC storage tank, while air sparging, to determine how much air entrainment would occur.

Summary of 10 CFR 50.59 Evaluation:

Both SLC pumps will be declared inoperable, as allowed by Technical Specifications prior to being tested. While inoperable, testing to determine the affects of air sparging with and without suction line flow will be conducted. Other than minor service air use, this testing will not affect any other system or overall plant activities. After air sparging is complete, both SLC pumps will be tested to confirm that pump air binding did not occur due to the testing. None of the testing has the potential to damage any SLC components. When the testing is complete, SLC will be fully capable of providing its UFSAR described functions with no reduction in reliability or capacity. The testing will be completed well within the Technical Specification allow out of service time.

Plant References:

Troubleshooting Control Form (TCF) 04-016

Title: Unit 1 Standby Liquid Control Troubleshooting - Filtering

Evaluation Identification Number: RAINS 04-1042

Brief Description:

This troubleshooting activity was considered a test that was not described in the UFSAR. During this activity, the Unit 1 SLC storage tank was filtered. Air sparging was also done, as needed, to stir up the contents of the tank. The quantity and nature of material removed will be used to assess the effectiveness of this filtering method.

Summary of 10 CFR 50.59 Evaluation:

The Unit 1 SLC system will be declared inoperable, as allowed by Technical Specifications, prior to beginning testing. While inoperable, the SLC tank fluid will be circulated and filtered. Air sparging will also be performed. After filtering is complete, both SLC pumps will be tested to confirm that pump air binding did not occur due to the testing. None of the testing has the potential to damage any SLC components. When the testing is complete, SLC will be fully capable of providing its UFSAR described functions with no reduction in reliability or capacity. The testing will be completed well within the Technical Specification allow out of service time.

Plant References:

TCF 04-019

Title: Operational Requirements of Certain Annunciators

Evaluation Identification Number: RAINS 05-0024

Brief Description:

This change added a note to various Technical Requirements Manual (TRM) and Offsite Dose Calculation Manual (ODCM) sections stating that the annunciator function may be removed from operation for performance of troubleshooting for up to 30 minutes provided certain administrative controls are established to ensure that changing conditions are identified.

Summary of 10 CFR 50.59 Evaluation:

The change results in licensing bases document changes that impacted the ability of operators to be alerted by an alarm; however, the impact was determined to be minimal. The affected annunciators have no trip function and serve to alert operators to off normal conditions. Removal from operation for 30 minutes is a short period of time and the condition is bounded by existing analysis, required compensatory measures, and compensatory actions.

Plant References:

TRM Change Package TRM 2005-001

ODCM Revision 29

Title: Test of Unit 2 Turbine Building Ventilation in a Once-Through Configuration

Evaluation Identification Number: RAINS 05-0616

Brief Description:

This evaluation addresses the proposed operation of the Unit 2 Turbine Building (TB) ventilation in a once-through configuration, with both Unit 1 and Unit 2 operation at 100% Rated Thermal Power (RTP), for the purpose of determining if permanent operation in a once-through versus a recirculation mode. UFSAR Sections 6.4 and 15.6.3 currently provide the radiological effects of operating a shutdown unit's TB ventilation system in a once-through configuration with the opposite unit operating at 100% RTP. The change will: (1) operate both units at 100% RTP with Unit 2 TB ventilation in a once-through configuration, (2) move the release point for Unit 2 TB ventilation slightly closer to the control room than previously analyzed, and (3) implement temporary radiation monitoring of the Unit 2 TB HVAC once-through release point.

Summary of 10 CFR 50.59 Evaluation:

The operation of the TB ventilation system in a once-through alignment under the proposed administrative controls ensures that the test had minimal impact on safety. The test will be controlled to prevent operation during periods when mid or high range radiation monitoring capacity would be necessary and a setpoint will be established to revert to recirculation well before any ODCM limits are approached. Alternate indication of instrument malfunction, or if setpoints are exceeded, will be provided. Operators will be trained to assure they can promptly respond to any off-normal occurrence when the test is in progress. Procedural guidance will be provided to assure a slightly negative pressure is maintained in the TB. Emergency procedures will be revised to provide direction to re-align from once-through ventilation to the normal recirculation alignment if there is indication of high airborne radioactivity levels in the TB or at TB ventilation exhaust locations.

Plant References:

2OP037.3, Turbine Building Heating And Ventilation Operating Procedure
0AOP-05.0, Radioactive Spills, High Radiation, and Airborne Activity
0OI-37 Preparation and Review of the Plant Specific Technical Guide
0EOP-04-RRCP, Radioactivity Release Control Procedure
0OI-37.10 Radioactivity Release Control Procedure Basis Document
0EOP-01-AEDP, Alternate Emergency Depressurization Procedure
2ENP-63.1, Configuration of the U2 Turbine Building Ventilation System for Test of Once Through Operation

Title: Chlorine Sensor Replacement Frequency

Evaluation Identification Number: Action Request 169230

Brief Description:

The frequency specified in 0MST-CLDET21M, Chlorine Detection System Test, for sensor replacement was increased from six months to seven months.

Summary of 10 CFR 50.59 Evaluation:

The one month extension in replacement frequency for the chlorine sensors has only a minimal impact on chlorine detection system reliability.

Plant References:

0MST-CLDET21M, Chlorine Detection System Test

Title: 1A EHC Pressure Regulator Troubleshooting and Repair

Evaluation Identification Number: Action Request 170832

Brief Description:

In order to facilitate troubleshooting and repair of the 1A Electro-Hydraulic Control (EHC) pressure regulator, Work Package 751301 provided instructions for the on-line removal of the pressure regulator from service by using the pressure regulator fail switch and installing a ground at the output of the 1A ungated steam line resonance compensator card.

Summary of 10 CFR 50.59 Evaluation:

Performing maintenance on the 1A components, although out of service and isolated from control, could impact the in-service controls. This impact was evaluated to be minimal by engineering judgment, previous experience, and the use of appropriate administrative controls. The EHC system failure modes, the likelihood of an accident, nor the consequences of any accident will be different than previously evaluated. Fission product barriers and evaluation methodology will not be impacted by the proposed work.

Plant References:

Work Package 751301

Title: Cable Spreading Room Sprinkler System Actuation Methodology

Evaluation Identification Number: Action Request 170998

Brief Description:

This change involves changing the actuation of the Cable Spreading Room sprinkler systems from manual to automatic.

Summary of 10 CFR 50.59 Evaluation:

This evaluation was conservatively performed based on fundamentally altering the existing means of performing the design function of the Cable Spreading Room actuation from a manual initiation to an automatic (i.e., fusible link sprinkler heads with the isolation valve normally open). Conversion of the system from manual to automatic enables the system to operate much sooner for a fire in the room. This increases the overall fire response capabilities for these rooms. Additionally, eliminating manual action provides a more reliable system. There is no adverse impact on safety related equipment in the Cable Spread Rooms based on protective features (i.e. shielding from water spray) which are already in place.

Plant References:

Engineering Change (EC) 51419, Revision 2

UFSAR Change Package 2004FSAR-023

Title: Unit 1 Fuel Thermal Limit Restrictions

Evaluation Identification Number: Action Request 171569

Brief Description:

This change establishes and installs, via administrative controls, more restrictive fuel thermal limits, to compensate for an inoperable backup pressure regulator on Unit 1. The more restrictive thermal limits permit limited-duration operation in the 23 percent to 90 percent rated power range while the backup pressure regulator is inoperable.

Summary of 10 CFR 50.59 Evaluation:

There is no adverse impact on the frequency or consequences of any accident or equipment malfunction resulting from the proposed activity. No new failure modes or potential accident scenarios are created. This activity will ensure that the Unit 1 operating limits are appropriately restricted to preserve or increase the margin to safety and design limits. Therefore, the design bases are protected. The tools and methodology on which the activity is based are not a departure from typical UFSAR methods.

Plant References:

0GP-03 - Unit Startup and Synchronization

0GP-04 - Increasing Turbine Load at Rated Power

0GP-05 - Unit Shutdown

0GP-12, Power Changes

OOI-01.08, Control of Equipment and System Status

Title: Upgrade of Bulk Hydrogen Storage Facility

Evaluation Identification Number: Action Request 180461

Brief Description:

As part of an effort to upgrade the bulk hydrogen storage facility, it was determined that the existing hydrogen storage facility from the liquid storage tank to the excess flow check valve is seismically designed, but, not seismic Category I as indicated by UFSAR Section 3.2.1.6. This evaluation accepts, as is, the seismic design of hydrogen storage facility.

Summary of 10 CFR 50.59 Evaluation:

The location of the bulk hydrogen storage facility is remote from the remainder of the power plant such that a catastrophic failure involving a rupture and subsequent explosion of any of the hydrogen storage vessels could not adversely impact any equipment considered to be important to safety. Additionally, industry standards for this equipment (i.e., the Safety Evaluation Report associated with Electric Power Research Institute (EPRI) Document NP-5283-SR, Paragraph 1.4) do not require this equipment/components to be redundant, Seismic Category I electrical Class 1E, or environmentally qualified. For this reason, the changes being made by this to the bulk hydrogen storage facility are not required to be Seismic Category I.

Plant References:

EC 62375

UFSAR Change Package 2006FSAR-002

Title: Feedwater/Condensate System Limitations

Evaluation Identification Number: Action Request 185430

Brief Description:

After recent modifications increased feedwater pump capacity, feedwater turbine casing drain high level alarms have been noted when operating at high power with one pump. To ensure the turbines are operated within their normal operating parameters, administrative limits have been placed on single feed pump power level. For Unit 1, the 75% power administrative limit for single feed pump operation is above the power level expected after a runback and should allow for continued operation with no further power reduction. For Unit 2, the current 69% power administrative limit for single feed pump operation may require operator actions for an additional power reduction to allow continued operation. This is being treated as an adverse affect on a design function.

The increase condensate flow rates associated with the 120% uprate has resulted in a configuration where an indirect power reduction will result from a Condensate Pump A trip. This is being treated as an adverse affect on a design function.

Summary of 10 CFR 50.59 Evaluation:

These changes involve how the plant responds to simple pump trips and the changes discuss administrative limits that provide condensate pump and feedwater turbine protection. No conditions are being created where the components associated with accident initiation are subjected to conditions making failure more likely. The proposed limitations and reliance on operator actions for a small power reduction following either a Condensate Pump A trip or a Unit 2 single feedwater pump trip with runback to 74% power only have a slight impact on the likelihood of a scram. The recent feed pump changes improved the overall probability of scram avoidance for a single feed pump trip; therefore, it is very unlikely that overall expected scram frequency has been increased even when the combined effect of the feed pump turbine casing drain limitation are considered.

Plant References:

UFSAR Change Package 2006FSAR-008

Title: Replace Valves 1-CD-V3 and 1-CD-V5 with Blind Flanges

Evaluation Identification Number: Action Request 187373

Brief Description:

UFSAR Section 10.4.6.1, Design Basis for the Condensate Polishing System (CPS), credits the ability to realign the flow to pass through the Condensate Deepbed Demineralizers (CDDs) first as intended to maximize protection against seawater intrusion into the reactor vessel. Decommissioning of Unit 1 valves 1-CD-V3 and 1-CD-V5 has the affect of removing this flow reconfiguration feature.

Summary of 10 CFR 50.59 Evaluation:

The design change eliminates the ability to place the condensate polishing system in a configuration where the CDDs precede the Condensate Filter Demineralizers (CFDs) which is considered to be an abnormal lineup that is no longer incorporated in to the plant operating procedures. Due to the change to the non-precoatable CFD septa and historical results of attempts to operate in the abnormal CDD/CFD configuration, it was determined that it is acceptable to remove this capability on Unit 1. The normal CFD/CDD flow configuration is more effective at providing the capability to meet the design function for ionic and particulate removal during normal conditions and abnormal seawater incursion conditions.

Plant References:

EC 63572

UFSAR Change Package 2006FSAR-013

Title: Unit 1 Core Spray Flow Diversion Resulting from Header Piping Weld Repair

Evaluation Identification Number: Action Request 188683

Brief Description:

During the 2006 Unit 1 examination of Core Spray injection piping inside the vessel, indications and cracking at the Core Spray header piping weld P3c-270 were determined to require repair prior to startup. The repair will result in an increase in the estimated flow diversion for Core Spray Loop 1B. The increase exceeded the previous allowance for diversion flow. This evaluation demonstrated that the flow diversion allowance can be increased from 100 gpm to 175 gpm for short term core cooling and from 75 to 375 gpm for long term core cooling for both units and both Core Spray loops.

Summary of 10 CFR 50.59 Evaluation:

The allowance for in-vessel Core Spray flow diversion can be increased to 175 gpm for short term core cooling and 375 gpm for long term core cooling. The Core Spray pumps will operate reliably at the higher flow rates that are needed to allow for this diversion. There will be no need to reduce the assumed accident mitigation performance of the Core Spray system. The Diesel Generators are adequate to operate with the worst case accident loading. Although this change will increase the load assumed for long term operation of the Core Spray pumps, the load combinations that include Core Spray pumps are less than the limiting case. Therefore, there is no increase in maximum assumed Diesel Generator load. This change has only a minimal impact on Core Spray net positive suction head margins.

Plant References:

EC 63657

UFSAR Change Package 2006FSAR-019

Title: Replacement of Obsolete Chlorine Detection System and Chlorine Detection System Logic Change

Evaluation Identification Number: Action Request 197913

Brief Description:

This change added time delay relays to chlorine detector relay trip and alarm output circuits to eliminate detector cycling to an alarm/trip mode during a power up sequence. The time delay relays will prevent the chlorine detection system from operating for approximately 30 seconds after power is restored to the detectors. Under the conditions of an actual chlorine event after the automatic isolation of the control room ventilation (CREV) system has occurred, operator action is specified to position switches on the control board to maintain the CREV in chlorine isolation mode should a loss of offsite power (LOOP) occur.

Summary of 10 CFR 50.59 Evaluation:

The modification changes the logic associated with the chlorine protection mode of CREV to ensure that during design basis LOCA/LOOP conditions, inadvertent actuation of chlorine detectors does not adversely impact the radiation protection mode of CREV. Additionally, precautionary switch positioning is added to plant procedures to maintain the CREV in chlorine isolation mode should a LOOP occur. The licensing bases does not require a LOOP (i.e., or any other Design Basis Accident (DBA) or transient) be considered with a chlorine event. This action is taken as a conservative measure due to the consequences of chlorine introduction into the control room. The CREV system is not an initiator of any accident or transient and as such does not affect the probability or consequences of any previously evaluated DBA. Additionally, the changes do not adversely affect the ability of the radiation protection mode of CREV to maintain post-accident doses at their currently analyzed condition or the ability of the chlorine protection mode of CREV to maintain post-chlorine event habitability of the control room. This change does not increase the consequences of a malfunction of any equipment important to safety. The changes do not impact any methodologies nor do they impact any fission product barrier limits.

Plant References:

EC 60313

Regulatory Commitment Change Summary Report

Originating Document:

Letter from J. W. Spencer (CP&L) to NRC, "Reply to a Notice of Violation," dated September 30, 1991.

Subject of Change:

Fire Extinguisher Return Requirements

Original Commitment:

An NRC notice of violation was issued due to the use of a fire extinguisher with an expired inspection date by fire watch personnel for hot work activities. As a corrective action, plant procedure 0FPP-007, "Control and Use of Fire Fighting Equipment," was revised to require the return to plant stores of fire extinguishers within 7 days.

Revised Commitment:

Plant procedure 0FPP-007 has been revised to remove the requirement to return fire extinguishers issued from stores within 7 days.

Basis:

The current practice is to inspect fire extinguishers issued from stores at hot work or other location as the inspections fall due (i.e. every 30 days). Plant procedure 0FPP-007 also requires fire extinguishers to be returned prior to expiration of their inspection. Plant procedure FIR-NGGC-003, "Hot Work Permit," requires fire protection personnel to inspect hot work areas on a periodic basis. These administrative controls assure fire extinguishers are not used after their inspection has expired.