~~UNIT 1 ONLY~~

3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met:

a. Either a K_{eff} of 0.95 or less, or

b. A boron concentration of greater than or equal to ~~2000 ppm~~.

THE MINIMUM BORON CONCENTRATION SPECIFIED IN THE CORE OPERATING LIMITS REPORT

APPLICABILITY: MODE 6*, with the reactor vessel head closure bolts less than fully tensioned or with the head removed.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at greater than or equal to 30 gpm of a solution containing greater than or equal to 7000 ppm boron or its equivalent until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to ~~2000 ppm,~~ whichever is the more restrictive.

SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

a. Removing or unbolting the reactor vessel head, and

b. Withdrawal of any full length control rod in excess of 3 feet from its fully inserted position within the reactor vessel.

4.9.1.2 The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

4.9.1.3 NV-250 shall be verified closed under administrative control at least once per 72 hours; or, NV-131, NV-140, NV-176, NV-468, NV-808, and either NV-132 or NV-1026 shall be verified closed under administrative control at least once per 12 hours when necessary to makeup to the RWST during refueling operations.

*The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

UNIT 2 ONLY

3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

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LIMITING CONDITION FOR OPERATION

3.9.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling cana' shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met:

a. Either a K_{eff} of 0.95 or less, or

b. A boron concentration of greater than or equal to 2175 ppm.

APPLICABILITY: MODE 6*, with the reactor vessel head closure bolts less than fully tensioned or with the head removed.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reac'ivity changes and initiate and continue boration at greater than or equal to 30 gpm of a solution containing greater than or equal to 7000 ppm boron or its equivalent until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 2175 ppm, whichever is the more restrictive.

SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

a. Removing or unbolting the reactor vessel head, and

b. Withdrawal of any full length control rod in excess of 3 feet from its fully inserted position within the reactor vessel.

4.9.1.2 The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

4.9.1.3 NV-250 shall be verified closed under administrative control at least once per 72 hours; or, NV-131, NV-140, NV-176, NV-468, NV-808, and either NV-132 or NV-1026 shall be verified closed under administrative control at least once per 12 hours when necessary to makeup to the RWST during refueling operations.

*The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

~~UNIT 1 ONLY~~

REFUELING OPERATIONS

3/4.9.12 FUEL STORAGE - SPENT FUEL STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.9.12 Fuel is to be stored in the spent storage pool with:

a. The boron concentration in the spent fuel pool maintained at greater than or equal to ~~2000 ppm~~; and

b. Storage in Region 2 restricted to irradiated fuel which has decayed at least 16 days and one of the following:

1) fuel which has been qualified in accordance with Table 3.9-1; or

2) Fuel which has been qualified by means of an analysis using NRC approved methodology to assure with a 95 percent probability at a 95 percent confidence level that k_{eff} is no greater than 0.95 including all uncertainties; or

3) Unqualified fuel stored in a checkerboard configuration. In the event checkerboard storage is used, one row between normal storage locations and checkerboard storage locations will be vacant.

APPLICABILITY:

During storage of fuel in the spent fuel pool.

ACTION:

a. Suspend all actions involving the movement of fuel in the spent fuel pool if it is determined a fuel assembly has been placed in the incorrect Region until such time as the correct storage location is determined. Move the assembly to its correct location before resumption of any other fuel movement.

b. Suspend all actions involving the movement of fuel in the spent fuel pool if it is determined the pool boron concentration is less than 2000 ppm, until such time as the boron concentration is increased to ~~2000 ppm~~ or greater.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.12a. Verify all fuel assemblies to be placed in Region 2 of the spent fuel pool are within the enrichment and burnup limits of Table 3.9-1 or that $k_{eff} \leq 0.95$ by checking the assemblies' design and burnup documentation or the assemblies' qualifying analysis documentation respectively.

b. Verify at least once per 31 days that the spent fuel pool boron concentration is greater than ~~2000 ppm~~.

THE MINIMUM BORON CONCENTRATION SPECIFIED IN THE CORE OPERATING LIMITS REPORT

UNIT 2 ONLY

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REFUELING OPERATIONS

3/4.9.12 FUEL STORAGE - SPENT FUEL STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.9.12 Fuel is to be stored in the spent storage pool with:

a. The boron concentration in the spent fuel pool maintained at greater than or equal to 2175 ppm; and

b. Storage in Region 2 restricted to irradiated fuel which has decayed at least 16 days and one of the following:

1) fuel which has been qualified in accordance with Table 3.9-1; or

2) Fuel which has been qualified by means of an analysis using NRC approved methodology to assure with a 95 percent probability at a 95 percent confidence level that k_{eff} is no greater than 0.95 including all uncertainties; or

3) Unqualified fuel stored in a checkerboard configuration. In the event checkerboard storage is used, one row between normal storage locations and checkerboard storage locations will be vacant.

APPLICABILITY:

During storage of fuel in the spent fuel pool.

ACTION:

a. Suspend all actions involving the movement of fuel in the spent fuel pool if it is determined a fuel assembly has been placed in the incorrect Region until such time as the correct storage location is determined. Move the assembly to its correct location before resumption of any other fuel movement.

b. Suspend all actions involving the movement of fuel in the spent fuel pool if it is determined the pool boron concentration is less than 2175 ppm, until such time as the boron concentration is increased to 2175 ppm or greater.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.12a. Verify all fuel assemblies to be placed in Region 2 of the spent fuel pool are within the enrichment and burnup limits of Table 3.9-1 or that $k_{eff} \leq 0.95$ by checking the assemblies' design and burnup documentation or the assemblies' qualifying analysis documentation respectively.

b. Verify at least once per 31 days that the spent fuel pool boron concentration is greater than 2175 ppm.

~~UNIT 1 ONLY~~

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: (1) the reactor will remain subcritical during CORE ALTERATIONS, and (2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the accident analyses. The value of 0.95 or less for K_{eff} includes a 1% delta k/k conservative allowance for uncertainties. Similarly, the boron concentration value ~~of 2000 ppm~~ or greater includes a conservative uncertainty allowance of 50 ppm boron. MINIMUM SPECIFIED IN THE CORE OPERATING LIMITS REPORT

The Reactor Makeup Water Supply to the Chemical and Volume Control (NV) System is normally isolated during refueling to prevent diluting the Reactor Coolant System boron concentration. Isolation is normally accomplished by closing valve NV-250. However, isolation may be accomplished by closing valves NV-131, NV-140, NV-176, NV-468, NV-808, and either NV-132 or NV-1026, when it is necessary to makeup water to the Refueling Water Storage Tank during refueling operations.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the Source Range Neutron Flux Monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short-lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment building penetration closure and OPERABILITY of the Reactor Building Containment Purge Exhaust System HEPA filters and charcoal adsorbers ensure that a release of radioactive material within containment will be restricted from leakage to the environment or filtered through the HEPA filters and charcoal adsorbers prior to discharge to the atmosphere. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE. Operation of the Reactor Building Containment Purge Exhaust System HEPA filters and charcoal adsorbers and the resulting iodine removal capacity are consistent with the assumptions of the accident analysis. The methyl iodide penetration test criteria for the carbon samples have been made more restrictive than required for the assumed iodine removal in the accident analysis because the humidity to be seen by the charcoal adsorbers may be greater than 70% under normal operating conditions.

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3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: (1) the reactor will remain subcritical during CORE ALTERATIONS, and (2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the accident analyses. The value of 0.95 or less for K_{eff} includes a 1% delta k/k conservative allowance for uncertainties. Similarly, the boron concentration value of 2175 ppm or greater includes a conservative uncertainty allowance of 50 ppm boron.

The Reactor Makeup Water Supply to the Chemical and Volume Control (NV) System is normally isolated during refueling to prevent diluting the Reactor Coolant System boron concentration. Isolation is normally accomplished by closing valve NV-250. However, isolation may be accomplished by closing valves NV-131, NV-140, NV-176, NV-468, NV-808, and either NV-132 or NV-1026, when it is necessary to makeup water to the Refueling Water Storage Tank during refueling operations.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the Source Range Neutron Flux Monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short-lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment building penetration closure and OPERABILITY of the Reactor Building Containment Purge Exhaust System HEPA filters and charcoal adsorbers ensure that a release of radioactive material within containment will be restricted from leakage to the environment or filtered through the HEPA filters and charcoal adsorbers prior to discharge to the atmosphere. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE. Operation of the Reactor Building Containment Purge Exhaust System HEPA filters and charcoal adsorbers and the resulting iodine removal capacity are consistent with the assumptions of the accident analysis. The methyl iodide penetration test criteria for the carbon samples have been made more restrictive than required for the assumed iodine removal in the accident analysis because the humidity to be seen by the charcoal adsorbers may be greater than 70% under normal operating conditions.

3/4.9.9 and 3/4.9.10 WATER LEVEL - REACTOR VESSEL and STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the accident analysis.

3/4.9.11 FUEL HANDLING VENTILATION EXHAUST SYSTEM

The limitations on the Fuel Handling Ventilation Exhaust System ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorbers prior to discharge to the atmosphere. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the accident analyses. ANSI N510-1975 will be used as a procedural guide for surveillance testing. The methyl iodide penetration test criteria for the carbon samples have been made more restrictive than required for the assumed iodine removal in the accident analysis because the humidity to be seen by the charcoal adsorbers may be greater than 70% under normal operating conditions.

3/4.9.12 FUEL STORAGE - SPENT FUEL STORAGE POOL

The requirements for fuel storage in the spent fuel pool on 3.9.12 (a) and (b) ensure that: (1) the spent fuel pool will remain subcritical during fuel storage; and (2) a uniform boron concentration is maintained in the water volume in the spent fuel pool for reactivity control. The value of 0.95 or less for Keff which includes all uncertainties at the 95/95 probability/ confidence level as described in Section 9.1.2.3.1 of the FSAR is the acceptance criteria for fuel storage in the spent fuel pool. Table 3.9-1 is conservatively developed in accordance with the acceptance criteria and methodology referenced in Section 5.6 of the Technical Specifications. Storage in a checkerboard configuration in Region 2 meets all the acceptance criteria referenced in Section 5.6 of the Technical Specifications and is verified in a semi-annual basis after initial verification through administrative controls.

The Action Statement applicable to fuel storage in the spent fuel pool ensures that: (1) the spent fuel pool is protected from distortion in the fuel storage pattern that could result in a critical array during the movement of fuel; and (2) the boron concentration is maintained at ~~2000 ppm~~ during all actions involving movement of fuel in the spent fuel pool.

MINIMUM

THE LIMIT SPECIFIED IN THE CORE OPERATING LIMITS REPORT.

The Surveillance Requirements applicable to fuel storage in the spent fuel pool ensure that: (1) fuel stored in Region 2 meets the enrichment and burnup limits of Table 3.9-1 or the $K_{eff} \leq 0.95$ acceptance criteria of an analysis using NRC approved methodology; and (2) the boron concentration meets the ~~2003 ppm~~ limit.

MINIMUM

SPECIFIED IN THE CORE OPERATING LIMITS REPORT

3/4.9.9 and 3/4.9.10 WATER LEVEL - REACTOR VESSEL and STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the accident analysis.

3/4.9.11 FUEL HANDLING VENTILATION EXHAUST SYSTEM

The limitations on the Fuel Handling Ventilation Exhaust System ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorbers prior to discharge to the atmosphere. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the accident analyses. ANSI N510-1975 will be used as a procedural guide for surveillance testing. The methyl iodide penetration test criteria for the carbon samples have been made more restrictive than required for the assumed iodine removal in the accident analysis because the humidity to be seen by the charcoal adsorbers may be greater than 70% under normal operating conditions.

3/4.9.12 FUEL STORAGE - SPENT FUEL STORAGE POOL

The requirements for fuel storage in the spent fuel pool on 3.9.12 (a) and (b) ensure that: (1) the spent fuel pool will remain subcritical during fuel storage; and (2) a uniform boron concentration is maintained in the water volume in the spent fuel pool for reactivity control. The value of 0.95 or less for Keff which includes all uncertainties at the 95/95 probability/ confidence level as described in Section 9.1.2.3.1 of the FSAR is the acceptance criteria for fuel storage in the spent fuel pool. Table 3.9-1 is conservatively developed in accordance with the acceptance criteria and methodology referenced in Section 5.6 of the Technical Specifications. Storage in a checkerboard configuration in Region 2 meets all the acceptance criteria referenced in Section 5.6 of the Technical Specifications and is verified in a semi-annual basis after initial verification through administrative controls.

The Action Statement applicable to fuel storage in the spent fuel pool ensures that: (1) the spent fuel pool is protected from distortion in the fuel storage pattern that could result in a critical array during the movement of fuel; and (2) the boron concentration is maintained at 2175 ppm during all actions involving movement of fuel in the spent fuel pool.

The Surveillance Requirements applicable to fuel storage in the spent fuel pool ensure that: (1) fuel stored in Region 2 meets the enrichment and burnup limits of Table 3.9-1 or the $K_{eff} \leq 0.95$ acceptance criteria of an analysis using NRC approved methodology; and (2) the boron concentration meets the 2175 ppm limit.

Attachment Ib
Marked-up Technical Specification Pages
Catawba

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 92 days by verifying that the individual cell voltage is greater than or equal to 1.36 volts on float charge, and

c. At least once per 18 months by verifying that:

1) The batteries, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration, and

2) The battery-to-battery and terminal connections are clean, tight, and free of corrosion.

4.7.13.3 The Standby Makeup Pump water supply shall be demonstrated OPERABLE by:

a. Verifying at least once per 7 days:

1) That the requirements of Specification 3.9.10 are met and the boron concentration in the storage pool is ~~greater than or equal to 2000 ppm~~, or

2) That a contained borated water volume of at least 112,320 gallons with ~~minimum~~ boron concentration of ~~2,000 ppm~~ is available and capable of being aligned to the Standby Makeup Pump.

GREATER THAN OR EQUAL TO THE MINIMUM SPECIFIED IN THE CORE OPERATING LIMITS REPORT

b. Verifying at least once per 92 days that the Standby Makeup Pump develops a flow of greater than or equal to 26 gpm at a pressure greater than or equal to 2488 psig.

4.7.13.4 The Standby Shutdown System 250/125-Volt Battery Bank and its associated charger shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying:

1) That the electrolyte level of each battery is above the plates, and

2) The total battery terminal voltage is greater than or equal to 258/129 volts on float charge.

b. At least once per 92 days by verifying that the specific gravity is appropriate for continued service of the battery, and

c. At least once per 18 months by verifying that:

1) The batteries, cell plates, and battery racks show no visual indications of physical damage or abnormal deterioration, and

2) The battery-to-battery and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material.

3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met either:

a. A K_{eff} of 0.95 or less, or

b. A boron concentration of greater than or equal to ~~2175 ppm~~ THE MINIMUM SPECIFIED IN THE CORE OPERATING LIMITS REPORT.

APPLICABILITY: MODE 6.* (Unit 1)

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at greater than or equal to 30 gpm of a solution containing greater than or equal to 7000 ppm boron or its equivalent until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to ~~2000 ppm~~, whichever is the more restrictive.

SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

a. Removing or unbolting the reactor vessel head, and

b. Withdrawal of any full-length control rod in excess of 3 feet from its fully inserted position within the reactor vessel.

4.9.1.2 The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

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*The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

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3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met either:

a. A K_{eff} of 0.95 or less, or

b. A boron concentration of greater than or equal to 2000 ppm.

APPLICABILITY: MODE 6.* (Unit 2)

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at greater than or equal to 30 gpm of a solution containing greater than or equal to 7000 ppm boron or its equivalent until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 2000 ppm, whichever is the more restrictive.

SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

a. Removing or unbolting the reactor vessel head, and

b. Withdrawal of any full-length control rod in excess of 3 feet from its fully inserted position within the reactor vessel.

4.9.1.2 The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

*The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: (1) the reactor will remain subcritical during CORE ALTERATIONS, and (2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the safety analyses. The value of 0.95 or less for K_{eff} includes a 1% $\Delta k/k$ conservative allowance for uncertainties. Similarly, the boron concentration value ~~of 2175 ppm for Unit 1 and 2000 ppm for Unit 2~~ or greater includes a conservative uncertainty allowance of 50 ppm boron.

EQUAL TO THAT SPECIFIED IN THE CORE OPERATING LIMITS REPORT

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the Boron Dilution Mitigation System ensures that monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short-lived fission products. This decay time is consistent with the assumptions used in the safety analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment building penetration closure and OPERABILITY of the Reactor Building Containment Purge System ensure that a release of radioactive material within containment will be restricted from leakage to the environment or filtered through the HEPA filters and activated carbon adsorbers prior to release to the atmosphere. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE. Operation of the Reactor Building Containment Purge System and the resulting iodine removal capacity are consistent with the assumption of the safety analysis. Operation of the system with the heaters operating to maintain low humidity using automatic control for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. ANSI N510-1980 will be used as a procedural guide for surveillance testing.

Attachment II
Justification and Safety Analysis

Proposed Change to Technical Specification 3.9.1, Boron Concentration in the RCS and Refueling Canal in Mode 6

The limits on boron concentration in the Reactor Coolant System and the refueling canal are verified each cycle to ensure that adequate margin to criticality exists during core alterations, and to ensure that a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limits are evaluated using the methodology presented in DPC-NE-2010A (Reference). K_{eff} will be maintained at or below .95, including a 1% $\Delta k/k$ conservative allowance for penalties.

Proposed Change to Technical Specification 3.9.12, Boron Concentration in the Spent Fuel Storage Pool

The limits on boron concentration in the Spent Fuel Pool verified each cycle to ensure that adequate subcriticality margin exists during fuel storage, and to ensure that a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limits are evaluated using the methodology presented in DPC-NE-2010A (Reference 1). K_{eff} will be maintained at or below .95, including all uncertainties at a 95/95 probability/confidence level for fuel storage in the spent fuel pool.

Acceptability of Removal of Limits from Technical Specifications

Cycle-specific parameters, including boron concentration, are generated using NRC-approved methodologies. These methodologies are listed in Technical Specification 6.9.1.9 for each McGuire and Catawba. Through issuance of Generic Letter 88-16, the NRC has determined that such cycle-specific variables may be removed from Technical Specifications and placed in a licensee-controlled Core Operating Limits Report; thus obviating the need for NRC review to facilitate changes. Boron concentrations, specifically, have been approved for removal from Technical Specifications for Catawba Nuclear Station by amendment numbers 115 (Unit 1) and 109 (Unit 2) to the station's Facility Operating License.

Reference

DPC-NE-2010A, "Nuclear Physics Methodology for Reload Design", June, 1985.

ATTACHMENT III

Analysis to Support the Conclusion of No Significant Hazard

The following analysis, performed pursuant to 10 CFR 50.91, shows that the proposed amendment will not create a significant hazards consideration as defined by the criteria of 10 CFR 50.92.

1. This amendment will not significantly increase the probability or consequence of any accident previously evaluated.

   No component modification, system realignment, or change in operating procedure will occur which could affect the probability of any accident or transient. The relocation of boron concentration values to the COLR is an adminstrative change which will have no effect on the probability or probability or consequences of any previously-analyzed accident. The required values of boron concentration will continue to be determined through use of approved methodologies.

2. This amendment will not create the possibility of any new or different accidents not previously evaluated.

   No component modification or system realignment will occur which could create the possibility of a new event not previously considered. The administrative change of relocating parameters to the COLR, in this case boron concentration, cannot create the probability of an accident.

3. This amendment will not involve a significant reduction in a margin of safety.

   Required boron concentrations will remain appropriate for each cycle, and will continue to be calculated using approved methodologies. There is no significant reduction in a margin of safety.