Table 8-1
Technical Specification Changes

Specification	Description of Change
4.7.13.3	Increase spent fuel storage pool minimum boron concentration from 2000 ppm to 2175 ppm.
3.9.1	Increase RCS and refueling water canal minimum boron concentration from 2000 ppm to 2175 ppm.
6.9.1.9	Add Duke Topicals used to determine core operating limits.

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~~ 2175 ppm, or

2) That a contained borated water volume of at least 112,320 gallons with minimum boron concentration of ~~2,000~~ 2175 ppm is available and capable of being aligned to the Standby Makeup Pump.

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

Delete

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.

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.

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~~ 2175 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~~ 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.

*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.

CORE OPERATING LIMITS REPORT (Continued)

9. DPC-NE-3000P-A, Rev. 1, "Thermal-Hydraulic Transient Analysis Methodology," November 1991.

   (Modeling used in the system thermal-hydraulic analyses)

10. DPC-NE-1004A, "Nuclear Design Methodology Using CASMO-3/SIMULATE-3P," November 1992.

    (Methodology for Specification 3.1.1.3 - Moderator Temperature Coefficient.)

The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.

The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC in accordance with 10 CFR 50.4.

11. DPC-NE-2004P-A, "Duke Power Company McGuire and Catawba Nuclear Stations Core Thermal-Hydraulic Methodology using VIPRE-01", December 1991 (DPC Proprietary).

    (Methodology used in the core thermal-hydraulic analyses which determine the core operating limits)

12. DPC-NE-2001P-A, Rev. 1, "Fuel Mechanical Reload Analysis Methodology for Mark-BW Fuel," October 1990 (DPC Proprietary).

    (Methodology used in the fuel mechanical analyses which determine the core operating limits)

9. STARTUP PHYSICS TESTING

The standard scope of reload startup physics testing conducted at Duke Power Westinghouse units is summarized below (Reference 1). The purpose of the test program is to provide assurance that the reactor core is loaded correctly and can be operated as designed.

Zero Power Physics Testing (ZPPT)

- All Rods Out Critical Boron Concentration (AROCBC)
- Isothermal Temperature Coefficient (ITC)
- Control Rod Bank Worth (Reference 15)

Power Escalation Testing (PET)

- Flux Symmetry Check (Low Power, e.g. 30% FP)
- Core Power Distribution - CPD (Intermediate Power)
- CPD (High Power)
- All Rods Out Critical Boron Concentration - AROCBC (High Power)

All aspects of the existing program are acceptable with respect to implementation of the Duke Power Company licensing analyses and a complete reload batch of Mark-BW fuel assemblies. Therefore, operation with either a mixed Westinghouse and BWFC core or future cores with all BWFC fuel will not require any changes to the current Duke startup physics testing program.

10. REFERENCES

1. Catawba Nuclear Station, Final Safety Analysis Report, Docket Nos. 50 - 413/414.

2. BAW-10172-PA, Mark-BW Mechanical Design Report, Babcock & Wilcox, Lynchburg, Virginia, December 19, 1989.

3. DPC-NE-2001-PA, Rev. 1, Fuel Mechanical Reload Analysis Methodology for Mark-BW Fuel, Duke Power Company, October 1990.

4. BAW-10084-A, Rev. 2, Program to Determine In-Reactor Performance of B&W Fuels - Cladding Creep Collapse, Babcock & Wilcox, October 1978.

5. BAW-10141-PA, Rev. 1, TACO2 - Fuel Performance Analysis, Babcock & Wilcox, June 1983.

6. DPC-NE-1004A, Nuclear Design Methodology Using CASMO-3/SIMULATE-3P, Duke Power Company, November 1992.

7. DPC-NE-2011-PA, Nuclear Design Methodology for Core Operating Limits of Westinghouse Reactors, Duke Power Company, March 1990.

8. DPC-NE-2004-PA, McGuire and Catawba Nuclear Stations Core Thermal-Hydraulic Methodology using VIPRE-01, Duke Power Company, December 1991.

9. BAW-10159-PA, BWCMV Correlation of Critical Heat Flux in Mixing Vane Grid Fuel Assemblies, Babcock & Wilcox, July 1990.

10. BAW-10173-PA, Mark-BW Reload Safety Analysis for Catawba and McGuire, Babcock & Wilcox, Revision 2, February 20, 1991.

11. DPC-NE-3000P, Duke Power Company, Thermal-Hydraulic Transient Analysis Methodology, Revision 1, May 1989.

12. DPC-NE-3001-PA, Duke Power Company, Multidimensional Reactor Transients and Safety Analysis Physics Parameters Methodology, Revision 1, November 1991.

13. BAW-10174-A, Mark-BW Reload LOCA Analysis for the Catawba and McGuire Units, Babcock & Wilcox, May 1991.

14. BAW-10168-A, B&W Loss-of-Coolant Accident Evaluation Model For Recirculating Steam Generator Plants, Babcock & Wilcox, Lynchburg, Virginia, January 1991.

15. DPC-NE-1003-A, Revision 1, McGuire Nuclear Station/Catawba Nuclear Station Rod Swap Methodology Report for Startup Physics Testing, December 1986.

16. DPC-NE-3002-A, McGuire Nuclear Station/Catawba Nuclear Station FSAR Chapter 15 System Transient Analysis Methodology, November 1991.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

enter ACTION c.1 within 6 hours of the low boron determination or be in HOT STANDBY within the next 6 hours and reduce Reactor Coolant System pressure to less than 1000 psig within the following 6 hours.

3) The volume weighted average boron concentration of the accumulators 1800 ppm or less, return the volume weighted average boron concentration of the accumulators to greater than 1800 ppm and enter ACTION c.2 within 1 hour of the low boron determination or be in HOT STANDBY within the next 6 hours and reduce Reactor Coolant System pressure to less than 1000 psig within the following 6 hours.

SURVEILLANCE REQUIREMENTS

~~4.5.1~~ Each cold leg injection accumulator shall be demonstrated OPERABLE:

4.5.1.1

a. At least once per 12 hours by:

1) Verifying, by the absence of alarms, the contained borated water volume and nitrogen cover-pressure in the tanks, and

2) Verifying that each cold leg injection accumulator isolation valve is open.

b. At least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 75 gallons by verifying the boron concentration of the accumulator solution;

c. At least once per 31 days when the Reactor Coolant System pressure is above 2000 psig by verifying that power is removed from the isolation valve operators on Valves NI54A, NI65B, NI76A, and NI88B and that the respective circuit breakers are padlocked; and

d. At least once per 18 months by verifying that each cold leg injection accumulator isolation valve opens automatically under each of the following conditions:~~**~~

1) When an actual or a simulated Reactor Coolant System pressure signal exceeds the P-11 (Pressurizer Pressure Block of Safety Injection) Setpoint, and

2) Upon receipt of a Safety Injection test signal.

~~**~~ This surveillance need not be performed until prior to entering HOT STANDBY following the Unit 1 refueling.

SURVEILLANCE REQUIREMENTS (Continued)

~~4.5.1~~ Each cold leg injection accumulator water level and pressure channel shall be demonstrated OPERABLE:

4.5.1.2

a. At least once per 31 days by the performance of an ANALOG CHANNEL OPERATIONAL TEST, and

b. At least once per 18 months by the performance of a CHANNEL CALIBRATION.

SURVEILLANCE REQUIREMENTS

4.7.12 The groundwater level shall be determined at the following frequencies by monitoring the water level and by verifying the absence of alarm in the six groundwater monitor wells as shown in FSAR Figure ~~2.4.13-14~~ 2-60 installed around the perimeter of the Reactor and Auxiliary Buildings:

a. At least once per 7 days when the groundwater level is at or below the top of the adjacent floor slab, and

b. At least once per 24 hours when the groundwater level is above the top of the adjacent floor slab.

ATTACHMENT 2

TECHNICAL JUSTIFICATION

Proposed Revision to Technical Specification 4.7.13.3

This proposed Technical Specification revision reflects an increase, from 2000 ppm to 2175 ppm, in the required spent fuel storage pool minimum boron concentration during Modes 1 - 3 operation.

Technical Justification

This proposed revision is conservative, and is required only to maintain consistency between the boron concentration of the spent fuel storage pool and the boron concentration of the RWST (Catawba Unit 2 Cycle 7 COLR) during Modes 1 - 3 operation. Since the water source for the spent fuel storage pool is the RWST, the water inventories are at the same boron concentrations. If Technical Specification 4.7.13.3 were to be used without regard to TS 3.1.2.6 when water is returned to the RWST from the spent fuel storage pool, the RWST water inventory may be less than the TS RWST minimum boron concentration limit in TS 3.1.2.6. While changes to the TS 4.7.13.3 boron concentration is not generally reload related, it should be changed to match that of TS 3.1.2.6, to provide consistency and prevent a possible occurrence of the above situation.

Proposed Revision to Technical Specification 3.9.1

This proposed Technical Specification revision reflects an increase, from 2000 ppm to 2175 ppm, in the required RCS and refueling canal minimum boron concentration during Mode 6 operation.

Technical Justification

This proposed revision is conservative, and is required only to maintain consistency between the boron concentrations of the RCS and refueling canal and the boron concentration of the RWST (Catawba Unit 2 Cycle 7 COLR) during Mode 6 operation. In addition, the unit specific designation for TS 3.9.1 is removed as the concentrations at Units 1 & 2 are now identical. This change has already been approved for Unit 1 under Amendment 112 issued December 17, 1993 for Catawba Unit 1 Cycle 8.

Proposed Revision to Technical Specification 6.9.1.9

This proposed Technical Specification revision is to include two reload related topicals, which have been previously reviewed and approved by the NRC, describing methodology used to determine core operating limits.

Technical Justification

Duke Topical Reports DPC-NE-2004P-A and DPC-NE-2001P-A were inadvertently omitted from the list of topical reports that are used to determine the core operating limits. DPC-NE-2004P-A explains the methodology for performing the core thermal-hydraulic analyses that are used to determine the core operating limits. DPC-NE-2001P-A explains the methodology for performing the fuel rod mechanical analyses that are used to determine the core operating limits.

Proposed Revisions of an Administrative Nature to Correct Errors in Nomenclature and to Remove Obsolete Footnotes

These proposed Technical Specification revisions are considered administrative in nature. They are as follows:

(1) There are presently two different surveillance requirements pertaining to the cold leg injection accumulators which have the same surveillance requirement number (SR 4.5.1). The first of these is renumbered to SR 4.5.1.1 and the second is renumbered to SR 4.5.1.2.

(2) Old SR 4.5.1 on page 3/4 5-2 contains a reference to an obsolete footnote. This footnote is being deleted.

(3) SR 4.7.12 references an FSAR figure which continues to utilize an obsolete numbering scheme. The correct FSAR figure number is 2-60.

ATTACHMENT 3

NO SIGNIFICANT HAZARDS ANALYSIS AND
ENVIRONMENTAL IMPACT STATEMENT

No Significant Hazards Analysis

The following analysis, required by 10 CFR 50.91, concludes that the proposed amendment will not involve significant hazards consideration as defined by 10 CFR 50.92.

10 CFR 50.92 states that a proposed amendment involves no significant hazards consideration if operation in accordance with the proposed amendment would not:

1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

2) Create the possibility of a new or different kind of accident from any previously evaluated; or

3) Involve a significant reduction in the margin of safety.

INCREASE IN BORON CONCENTRATION LIMIT FOR THE SPENT FUEL STORAGE POOL (STANDBY MAKEUP PUMP WATER SUPPLY)

The required spent fuel storage pool minimum boron concentration was increased from 2000 ppm to 2175 ppm during Modes 1-3.

The proposed revision is conservative, and is required only to maintain consistency between the boron concentration of the spent fuel storage pool and the boron concentration of the RWST during Modes 1-3 operation. Therefore, there will be no adverse impact upon the probability or consequences of any previously analyzed accident.

Likewise, the proposed change will not create the possibility of a new or different kind of accident, since no new failure modes are identified.

Finally, no negative impact upon any safety margin is created since the proposed change is conservative.

INCREASE IN BORON CONCENTRATION LIMITS FOR THE RCS AND REFUELING CANAL IN MODE 6

The increase in the required RCS and refueling canal minimum boron concentration was added only to maintain consistency between the boron concentration of the RCS and refueling canal and the RWST in Mode 6.

The change in boron concentration limits for the RCS and refueling canal will not increase the probability of an accident since no accident initiators are involved with this change. Since the

change is conservative, the consequences of an accident previously evaluated will not be increased. The increase in the boron concentration limit for the RCS and refueling canal in Mode 6 adds further margin to the initial conditions assumed for the boron dilution accident in the safety analysis. Therefore, the consequences of the boron dilution accident previously evaluated will not be increased.

The possibility of a new or different kind of accident from any previously evaluated will not be created since this change is bounded by previously evaluated accidents and does not introduce any new failure modes.

This change does not involve a significant reduction in the margin of safety since the analyses performed demonstrate that the limits imposed meet all accident analysis and design basis requirements.

ADDITION OF TWO RELOAD RELATED TOPICAL REPORTS

This change is administrative in nature and adds two previously approved topical reports to the list of methodologies used to determine core operating limits. The change will have no impact upon either the probability or consequences of a previously analyzed accident. The methodologies described in the topical reports have been previously reviewed and approved by the NRC. Also, no new accident possibilities are created, since this is an administrative change. Finally, no impact upon any safety margin is created, since the change is administrative in nature and the described topical reports have received full NRC approval.

CORRECTION OF ERRORS IN NOMENCLATURE AND REMOVAL OF OBSOLETE FOOTNOTES

These changes are also administrative in nature and are intended to correct miscellaneous errors and obsolete references. As such, the changes will have no impact upon either the probability or consequences of any previously analyzed accidents, will not create the possibility of any new accident scenarios, and will not impact any safety margins.

Environmental Impact Statement

The proposed amendment has been reviewed against the criteria of 10 CFR 51.22 for environmental considerations. As described above, the proposed amendment does not involve any significant hazards consideration, nor a significant increase or change in the types or amounts of effluents that may be released offsite, nor a significant increase in the individual or cumulative occupational radiation exposures. Therefore, the proposed amendment meets the criteria given in 10 CFR 51.22(c)(9) for categorical exclusion from the requirement for an Environmental Impact Statement.