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May 23, 2001

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

Subject: Duke Energy Corporation
Catawba Nuclear Station
Docket Nos. 50-413 and 50-414
UFSAR/Selected Licensee Commitment Changes

Pursuant to 10CFR 50.71(e), please find attached changes to the Catawba Nuclear Station Selected Licensee Commitments Manual. This document constitutes Chapter 16 of the Updated Final Safety Analysis Report (UFSAR).

Any questions regarding this information should be directed to A. P. Jackson, Regulatory Compliance, at (803) 831-3742.

I certify that I am a duly authorized officer of Duke Energy Corporation, and that the information contained herein accurately represents changes made to Chapter 16 of the UFSAR since the previous submittal.

Gary R. Peterson

Attachment

A053

xc: L. A. Reyes, Regional Administrator
U. S. Nuclear Regulatory Commission, Region II

C. P. Patel, Project Manager
U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation, Mail Stop 0-8 H12

D. J. Roberts
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May 23, 2001

RE: Catawba Nuclear Station
Selected Licensee Commitments Manual
Revision Date 05/15/01

Attached are revisions to the Catawba Nuclear Station Selected Licensee Commitments Manual. Please remove and replace the following pages:

REMOVE	**INSERT**
LIST OF EFFECTIVE PAGES	
Pages 1-8	Pages 1-8
TAB 16.7	
Chapter 16.7-8, page 1 of 2 dated 01/16/99	Chapter 16.7-8, page 1 of 4 dated 05/15/01
Chapter 16.7-8, page 2 of 2 dated 05/05/99	Chapter 16.7-8, page 2 of 4 dated 05/15/01
	Chapter 16.7-8, pages 3-4 dated 05/15/01
Chapter 16.7-9, pages 1-4 dated 09/20/99	Chapter 16.7-9, pages 1-4 dated 05/15/01
TAB 16.8	
Chapter 16.8-2, pages 1- 2 dated 01/16/99	Chapter 16.8-2, pages 1-2 dated 05/15/01
Chapter 16.8-3, pages 1-2 dated 01/15/97	Chapter 16.8-3, pages 1-2 dated 05/15/01
Chapter 16.8-4, pages 1-2 dated 05/29/97	Chapter 16.8-4, pages 1-2 dated 05/15/01
Chapter 16.8-5, pages 1-2 dated 06/10/99	Chapter 16.8-5, pages 1-2 dated 05/15/01
TAB 16.9	
Chapter 16.9-11, pages 1-3 dated 01/16/99	Chapter 16.9-11, pages 1-4 dated 05/15/01

Chapter 16.9-12, pages 1&2 of 3 dated 01/16/99	Chapter 16.9-11, pages 1&2 of 4 dated 05/15/01
Chapter 16.9-12, page 3 of 3 dated 05/05/99	Chapter 16.9-12, pages 3&4 of 4 dated 05/15/01
Chapter 16.9-24, pages 1-2 dated 11/30/00	Chapter 16.9-24, pages 1-2 dated 05/15/01
Chapter 16.10-2, pages 1-2 dated 01/15/97	Chapter 16.10-2, pages 1-2 dated 05/15/01

If you have any questions concerning the contents of this package update, contact Toni Pasour at (803) 831-3566.

Gary D. Gilbert
Regulatory Compliance Manager

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16.7 INSTRUMENTATION

16.7-8 GROUNDWATER LEVEL

COMMITMENT:

The groundwater level shall be maintained at or below the top of the adjacent floor slabs of the Reactor and Auxiliary Buildings, as defined by the limits for the Groundwater Level Monitors listed below:

Well Number	MW2	MW4	MW5	MW7	MW10	MW11
Bottom of Well	548'-0"	556'-4"	557'-10"	546'-9"	543'-5"	555'-9"
Adjacent Floor	550'-0"	558'-6"	558'-6"	550'-0"	560'-0"	560'-0"
Hi Alarm	550'-0"	558'-6"	558'-6"	550'-0"	560'-0"	560'-0"
Hi-Hi Alarm	555'-0"	563'-6"	563'-6"	555'-0"	565'-0"	565'-0"
Emer Hi Alarm	565'-0"	573'-6"	573'-6"	565'-0"	575'-0"	575'-0"

APPLICABILITY:

At all times.

REMEDIAL ACTION:

a. With one or more Groundwater Level Monitors inoperable, restore the inoperable monitor(s) to OPERABLE status within 7 days or: Verify the absence of a Hi-Hi level alarm in each groundwater sump every 12 hours and verify the absence of a Hi level alarm on any two of the following Monitoring Wells 2, 7, and 10 every 12 hours.

b. With the groundwater level above the top of the adjacent floor slab by less than or equal to 5 feet, reduce the groundwater level to or below the top of the affected adjacent floor slab within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With the groundwater level above the top of the adjacent floor slab by greater than 5 feet but less than 15 feet, reduce the groundwater level to less than or equal to 5 feet above the top of the affected adjacent floor slab within 24

REMEDIAL ACTION (con't)

hours and to or below the top of the affected adjacent floor slab within 7 days of initially exceeding the above limits or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With the groundwater level above the top of the adjacent floor slab by greater than or equal to 15 feet, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the next 30 hours. Perform an engineering evaluation to determine the effects of this higher groundwater level on the affected building(s) and submit the results of this evaluation and any corrective action determined necessary to the Commission as a Special Report prior to increasing T_{avg} above 200°F.

e. Determine the rate of rise of groundwater when the level reaches the top of the floor slab. If the rate of rise of the groundwater level is greater than or equal to 0.3 foot per hour, determine the rate of rise at least once per 30 minutes. If the rate of rise exceeds 0.5 foot per hour for more than 1 hour, be in at least HOT STANDBY within 1 hour and in COLD SHUTDOWN within the following 30 hours. If the rate of rise is less than 0.5 feet per hour, comply with the requirements of REMEDIAL ACTIONS b., c., and d. above.

TESTING REQUIREMENTS:

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 UFSAR Figure 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.

REFERENCES:

1. Letter from NRC to Gary R. Peterson, Duke, Issuance of Improved Technical Specifications Amendments for Catawba, September 30, 1998.

2. PIP C-00-06103, December 4, 2000.

BASES:

This COMMITMENT is provided to ensure that groundwater levels will be monitored and prevented from rising to unacceptable levels. High groundwater levels could

BASES (con't)

result in unacceptable structural stresses in the Containment and/or Auxiliary Building due to uplift and hydrostatic forces during design basis events. Although these buildings have been statically analyzed to withstand soil pressure along with the uplift and hydrostatic forces resulting from groundwater rebound to yard elevation (593'6"), this analysis did not include any other loadings and was not a design condition for these buildings.

The Groundwater Drainage System (WZ) for Catawba incorporates a permanent groundwater monitoring system that is designed to alert operators of rising groundwater levels at the base of the Reactor and Auxiliary Buildings.

The groundwater drainage system incorporates a grid system beneath the Reactor and Auxiliary Buildings, two sumps on the exterior of the Auxiliary Building and one sump on the interior of the Auxiliary Building, each with pumps and level alarms, a peripheral exterior drain system and twelve groundwater wells.

The six monitoring wells are utilized as an indication of any localized groundwater increases that may be indicative of increased level due to ruptured pipes, a problem with the underground grid system, or a problem with the groundwater sump pumps and level control system.

The twelve groundwater wells are installed in the exterior wall drain around the perimeter of the Reactor and Auxiliary Building. Continuous monitoring devices are installed in six of the twelve wells to monitor the groundwater level. Each of the six wells has three alarm points to alert the plant operator of a rise in groundwater. The first alarm point is set at the elevation of the top of the adjacent floor slab in the building. The second alarm point is set five feet and the third at fifteen feet above the top of the adjacent floor slab. These alarms correspond to Hi level, Hi-Hi level, and emergency Hi level. Any alarm will alert the plant operator to a groundwater rise. The remaining six wells without monitoring devices will be available to dewater the zoned wall filter in the unlikely event of a rise in groundwater.

The table under the COMMITMENT section of this SLC gives the relevant elevations and alarms associated with each of the monitor wells. Due to lower elevations, as indicated in the table, wells 2, 7, and 10 would be the first wells to come into alarm should a rapid increase in groundwater level occur. The Hi-Hi WZ sump level alarms occur at an elevation of 537' (for A & B) and 538' (for C) which is much lower than any monitor well; therefore, these level alarms, in conjunction with wells 2, 7, and 10, are used as required actions for the loss of a monitoring well for REMEDIAL ACTION a.

Should one of the groundwater monitoring wells lose its supply of instrument air, the indicated level will fail low and the associated alarm function will not be available.

BASES (con't)

This scenario renders the instrument inoperable and requires the actions of REMEDIAL ACTION a. to be met.

As required by Operations alarm response procedures, any alarms on SLC groundwater monitors will also be investigated to verify compliance with actions as stated in REMEDIAL ACTIONS.

16.7 INSTRUMENTATION

16.7-9 STANDBY SHUTDOWN SYSTEM

COMMITMENT:

The Standby Shutdown System (SSS) shall be OPERABLE.

APPLICABILITY:

MODES 1, 2, and 3.

REMEDIAL ACTION: (Units 1 and 2)

a. With the Standby Shutdown System inoperable, restore the inoperable equipment to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

b. With the total accumulative leakage from UNIDENTIFIED LEAKAGE, IDENTIFIED LEAKAGE and reactor coolant pump seal leakage greater than 20 gpm, declare the Standby Makeup Pump inoperable and take REMEDIAL ACTION a., above.

c. The provisions of SLC 16.2.3 are not applicable.

TESTING REQUIREMENTS:

1. The Standby Shutdown System diesel generator shall be demonstrated OPERABLE:

    a. At least once per 31 days by verifying:

        1) The fuel level in the fuel storage tank is greater than or equal to 67 inches, and

        2) The diesel starts from ambient conditions and operates for at least 30 minutes at greater than or equal to 700 kW.

    b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank, obtained in accordance with ASTM-D270-1975, is within the acceptable limits specified in Table 1 of ASTM-D975-1977 when checked for viscosity and water and sediment; and

c. At least once per 18 months by subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service.

2. The Standby Shutdown System diesel starting 24-volt battery bank and charger shall be demonstrated OPERABLE:

   a. At least once per 7 days by verifying that:

      1) The electrolyte level of each battery is at or above the low mark and at or below the high mark; and

      2) The overall battery voltage is greater than or equal to 24 volts on float charge.

   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.

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

   a. Verifying at least once per 7 days that the requirements of SLC 16.9-21 are met and the boron concentration in the storage pool is 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's developed head at the test flow point is greater than or equal to the required developed head, in accordance with the Inservice Testing Program.

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:

TESTING REQUIREMENTS (con't)

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.

5. The Steam Turbine Driven Auxiliary Feedwater Pump and controls from the Standby Shutdown Facility shall be demonstrated OPERABLE at least once per 18 months by verifying that the system functions as designed from the Standby Shutdown System.

6. Each Standby Shutdown System instrumentation device shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.

REFERENCES:

1. Letter from NRC to Gary R. Peterson, Duke, Issuance of Improved Technical Specifications Amendments for Catawba, September 30, 1998.
2. PT/1(2)/A/4150/001D, NC System Leakage Calculation.
3. PT/1(2)/A/4150/001I, Manual NC Leakage Calculation.
4. CNC-1223.04-00-0072, Reactor Coolant Pumps No. 1 Seal Leakoff Annunciator Alarm Setpoint for Unit 1 and Unit 2.
5. CNS-1560.SS-00-0001, Design Basis Specification for the Standby Shutdown Facility.

BASES:

The Standby Shutdown System (SSS) is designed to mitigate the consequences of certain postulated fire, security, and station blackout incidents by providing capability to maintain HOT STANDBY conditions and by controlling and monitoring vital systems from locations external to the main control room. This capability is

consistent with the requirements of 10 CFR Part 50, Appendix R, NUREG 0800 Section 9.5-1 and Appendix A to Branch Technical Position APSCB 9.5-1.

The TESTING REQUIREMENTS ensure that the SSS systems and components are capable of performing their intended functions. The required level in the SSS diesel generator fuel storage tank ensures sufficient fuel for 72 hours uninterrupted operation. It is assumed that, within 72 hours, either offsite power can be restored or additional fuel can be added to the storage tank.

Although the Standby Makeup Pump is not nuclear safety-related and was not designed according to ASME code requirements, it is tested quarterly to ensure its OPERABILITY. The TESTING REQUIREMENT concerning the Standby Makeup Pump water supply ensures that an adequate water volume is available to supply the pump continuously for 72 hours.

Total accumulative leakage is calculated in the NC System Leakage Calculation procedure as identified + unidentified + seal leakoff (References 2 and 3). The Remedial Action limit of 20 gpm total accumulative leakage provides additional margin to allow for instrument inaccuracy, and for the predicted increase in seal leakoff rate due to heatup of the NC pump seal injection water supply temperature following the SSF event (due to spent fuel pool heatup). Following the increase in seal injection temperature, the Standby Makeup Pump flow of 26 gpm is sufficient to provide in excess of this total accumulative leakage, thereby assuring that NC System inventory is maintained at hot standby condition. The supporting evaluation is provided in CNC-1223.04-00-0072 (Ref. 4).

16.8 ELECTRICAL POWER SYSTEMS

16.8-2 230 KV SWITCHYARD SYSTEMS

COMMITMENT:

The following Switchyard equipment shall be in its normal alignment:

a. Switchyard Unit 1 PCBS 14, 15, 17, and 18 including their associated Manual Disconnects, Current Transformers, Interconnecting Bus, and Support Structures (EBA system).

b. Switchyard Unit 2 PCBS 20,21,23, and 24 including their associated Manual Disconnects, Current Transformers, Interconnecting Bus, and Support Structures (EBA system).

c. Buslines 1A, 1B (from Main Stepup Transformers to Switchyard Unit PCBs), including their associated Motor Operated Disconnects, Coupling Capacitor Voltage Transformers, Interconnecting Bus, and Support Structures (EBA system).

d. Buslines 2A, 2B (from Main Stepup Transformers to Switchyard Unit PCBs), including their associated Motor Operated Disconnects, Coupling Capacitor Voltage Transformers, Interconnecting Bus, and Support Structures (EBA system).

e. Controls associated with the equipment above (EBE, ERE systems).

f. Protective Relaying associated with the equipment above (EBD, ERD systems).

g. 480 VAC Aux Power Load Centers STA for both Units Train A, STB for both Units Train B (EBI system).

h. 125 VDC Aux Power (EBH system). See SLC 16.8-3.

APPLICABILITY:

At all times in accordance with Technical Specifications (all Modes) and Site Directive 3.1.30 (Modes 4, 5, & 6).

REMEDIAL ACTIONS:

Return Switchyard equipment to the normal commitment alignment in accordance with Risk Assessment Matrix priorities.

TESTING REQUIREMENTS:

None

REFERENCES:

10 CFR 50.65, Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants

WPM 608, Outage Risk Assessment Utilizing ORAM-SENTINEL

WPM 609, Innage Risk Assessment Utilizing ORAM-SENTINEL

CNC-1535.00-00-0008, Severe Accident Analysis Report, CNS PRA Risk Significant SSCs for the Maintenance Rule.

CNS-010.01-EB-0001, Switchyard Design Basis Specification

TECH SPEC sections 3.8.1 and 3.8.2, LCOs for AC Power Sources during Operating and Shutdown modes

SITE DIRECTIVE 3.1.30, Unit Shutdown Configuration Control

BASES:

Effective implementation of the Maintenance Rule, 10 CFR 50.65, requires the continuous assessment of systems determined to be Risk Significant in the protection against Core Damage or Radiation Release. It has been determined through PRA numerical methods that Switchyard Systems are Risk Significant from the standpoint of causing or being able to recover from Loss of Offsite Power Events. This SLC serves two purposes. It defines the Risk Significant portions of the Switchyard. It also provides a method of tracking the Switchyard Systems for the purposes of supporting 10 CFR 50.65 and WPM 608 or WPM 609.

16.8 ELECTRICAL POWER SYSTEMS

16.8-3 230 KV SWITCHYARD 125 VDC POWER SYSTEM

COMMITMENT:

With the Switchyard in service, providing a power exchange between the site and the transmission grid, the 230 KV Switchyard 125 VDC Power System (EBH) shall be AVAILABLE, with a minimum of one battery (SYB-1 or SYB-2) and one charger (SYBC-1, SYBC-S, or SYBC-2) aligned to ~~each~~ distribution bus. This will provide an adequate, uninterruptable power source for relaying, control, and associated equipment requirements for normal switchyard operations.

APPLICABILITY:

At all times.

REMEDIAL ACTION:

Restore to the normal commitment alignment in accordance with the Risk Assessment Matrix priorities.

TESTING REQUIREMENTS:

Periodic Tests performed in accordance with the IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations".

REFERENCES:

IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations".

WPM 608, Outage Risk Assessment Utilizing ORAM-SENTINEL.

WPM 609, Innage Risk Assessment Utilizing ORAM-SENTINEL.

10 CFR 50.65, Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.

SAAG File: 160 Severe Accident Analysis Report, CNS Probability Risk Assessment (PRA) Risk Significant SSCs for the Maintenance Rule.

BASES:

The effective implementation of the Maintenance Rule, 10 CFR 50.65, requires the continuous assessment of systems determined to be Risk Significant in the protection against Core Damage or Radiation Release. It has been determined through PRA numerical methods that portions of the Switchyard Systems are Risk Significant from the standpoint of being able to recover from the Loss of Offsite Power Events. This SLC serves two purposes. It defines the Risk Significant portion of the Relaying and Power Control System of the Switchyard through acceptable EBH system configuration alignments. It also provides a method of tracking the Relaying and Power Control System for the purposes of supporting 10 CFR 50.65 and WPM 608 or WPM 609.

16.8 Electrical Power Systems

16.8-4 6900V Shared Transformers

COMMITMENT:

The 6900V Shared Transformers (SATA and SATB) will be available to be energized by the appropriate power source at all times of maintenance in which the indicated equipment is tagged and isolated. During the activities listed below (or their equivalent affects), ensure the supply power source is available, as directed:

Power Source/ Maintenance Activity	SATA from Bkr 1TC4	SATB from Brk 1TB4	SATA from Brk 2TC4	SATB from Brk 2TB4
Unit 1 Zone A Main Power			X	
Unit 1 Zone B Main Power				X
Unit 1 A EDG			X	
Unit 1 B EDG				X
Unit 2 Zone A Main Power	X			
Unit 2 Zone B Main Power		X		
Unit 2 A EDG	X			
Unit 2 B EDG		X		

APPLICABILITY:

At all times

REMEDIAL ACTION:

Restore the appropriate power source to the shared transformers to available in accordance with the Risk Assessment Matrix priorities.

TESTING REQUIREMENTS:

None

REFERENCES:

Maintenance Rule, 10CFR50.65.

WPM 608, Outage Risk Assessment Utilizing ORAM-SENTINEL.

WPM 609, Innage Risk Assessment Utilizing ORAM-SENTINEL.

BASES:

Effective implementation of the Maintenance Rule, 10CFR50.65, requires the continuous assessment of systems determined to be risk significant in the protection against Core Damage or Radiation Release. It has been determined through PRA numerical methods that the 6900V Shared Transformers (SATA and SATB) are risk significant from the standpoint of being able to recover from the Loss of Offsite Power Events. This SLC provides a method tracking the availlability of the Shared Transformers for the purpose of supporting 10 CFR 50.65 and WPM 608 or WPM 609.

16.8 ELECTRICAL POWER SYSTEMS

16.8-5 DIESEL GENERATOR SUPPLEMENTAL TESTING REQUIREMENTS

COMMITMENT:

a. The diesel generator shall be operated at less than or equal to 5750 kW.

b. The Cathodic Protection System shall be OPERABLE.

c. The diesel generator Testing Requirements specified below shall be met.

APPLICABILITY:

MODES 1, 2, 3, 4, 5, and 6.

REMEDIAL ACTION:

a. With a diesel generator operating at greater than 5750 kW, within 1 hour reduce the diesel generator output to less than or equal to 5750 kW.

b. With the Cathodic Protection System inoperable, restore the System to OPERABLE status within 10 days or prepare and submit a Special Report outlining the cause of the inoperability and the plans for restoring the System to OPERABLE.

c. With the specified Testing Requirements, except Testing Requirement b, not met, declare the affected diesel generator inoperable and take the ACTIONS of Technical Specification 3.8.1 or 3.8.2.

TESTING REQUIREMENTS:

Each diesel generator shall be demonstrated OPERABLE:

a. After each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day tank;

b. By verifying that the Cathodic Protection System is OPERABLE by verifying:

   1) At least once per 60 days that cathodic protection rectifiers are OPERABLE and have been inspected in accordance with Duke Power approved inspection procedures, and

TESTING REQUIREMENTS (con't)

2) At least once per 12 months that adequate protection from corrosion is provided in accordance with Duke Power approved inspection procedures.

c. At least once per 18 months by:

1) Subjecting the diesel to an inspection, in accordance with procedures based on engineering practices for medium speed diesels in this class of standby service;

2) Verifying that the fuel transfer valve transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross-connection lines; and

3) Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:

a) Turning gear engaged, or

b) Maintenance mode.

d. At least once per 10 years by performing tank wall thickness measurements. The resulting data shall be evaluated and any abnormal degradation will be justified or corrected. Any abnormal degradation will be documented in a report to the Commission.

REFERENCES:

1. Letter from NRC to Gary R. Peterson, Duke, Issuance of Improved Technical Specifications Amendments for Catawba, September 30, 1998.

BASES:

The supplemental Testing Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants", Revision 1, August 1977, Regulatory Guide 1.137, "Fuel-Oil Systems for Standby Diesel Generators", Revision 1, October 1979, and the NRC Staff Evaluation Report concerning the Reliability of Diesel Generators at Catawba, August 14, 1984. If any other metallic structures (building, new or modified piping systems, conduits) are placed in the ground near the Fuel Oil Storage System or if the original system is modified, the adequacy and frequency of inspections for the Cathodic Protection System shall be reevaluated and adjusted, as required.

16.9 AUXILIARY SYSTEMS

16.9-11 BORATION SYSTEMS BORATED WATER SOURCE – SHUTDOWN

COMMITMENT:

As a minimum, one of the following borated water sources shall be OPERABLE:

a. A Boric Acid Storage System with:

1) A minimum contained borated water volume as presented in the CORE OPERATING LIMITS REPORT,

2) A minimum boron concentration as presented in the CORE OPERATING LIMITS REPORT, and

3) A minimum solution temperature of 65°F.

b. The refueling water storage tank with:

1) A minimum contained borated water volume as presented in the CORE OPERATING LIMITS REPORT,

2) A minimum boron concentration as presented in the CORE OPERATING LIMITS REPORT, and

3) A minimum solution temperature of 70°F.

APPLICABILITY:

MODE 4 with any RCS cold leg temperature ≤ 285°F,
MODES 5 and 6.

REMEDIAL ACTION:

With no borated water source OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

TESTING REQUIREMENTS:

The above required borated water source shall be demonstrated OPERABLE:

a. At least once per 7 days by:

TESTING REQUIREMENTS (con't)

1) Verifying the boron concentration of the water,

2) Verifying the contained borated water volume, and

3) Verifying the boric acid storage tank solution temperature when it is the source of borated water.

b. At least once per 24 hours by verifying the refueling water storage tank temperature when it is the source of borated water and the outside air temperature is less than 70°F.

REFERENCES:

1. Letter from NRC to Gary R. Peterson, Duke, Issuance of Improved Technical Specifications Amendments for Catawba, September 30, 1998.
2. Core Operating Limits Report (COLR), Latest Release.

BASES:

The Boration System Borated Water Sources ensures that negative reactivity control is available during each mode of facility operation.

In MODE 4 with any RCS cold leg temperature ≤ 285°F, and in MODES 5 and 6, one Borated Water Source is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting CORE ALTERATIONS and positive reactivity changes in the event the single Borated Water Source becomes inoperable. The boration capability of one borated water source, in association with a flow path and charging pump, is sufficient to provide a SHUTDOWN MARGIN (SDM) of 1% $\Delta k/k$ after xenon decay and cooldown from 200°F to 140°F. To maintain SDM for this condition a minimum water volume at a minimum boron concentration, as presented in the CORE OPERATING LIMITS REPORT, is required from the boric acid storage tanks or the refueling water storage tank.

A minimum contained water volume and boron concentration, as presented in the CORE OPERATING LIMITS REPORT (COLR), is required to be available from the borated water sources in MODES 5 and 6. This volume is based on the required volume for maintaining SDM, unusable volume (to allow for a full suction pipe), instrument error, and additional margin for conservatism as follows:

BASES (con't)

Boric Acid Tank

Required Volume for Maintaining SDM	presented in the COLR
Unusable Volume, Vortexing, Inst. Error	10,846 gallons
Additional margin	569 gallons

Refueling Water Storage Tank

Required Volume for Maintaining SDM	presented in the COLR
Water Below the Nozzle	13,442 gallons
Instrument Inaccuracy	11,307 gallons
Vortexing	13,247 gallons
Additional Margin	3,504 gallons

The contained water volume limits include allowance for water not available because of discharge line location and other physical characteristics.

There is no difference in the REMEDIAL ACTIONS specified for borated water source inoperability due to volume, boron concentration or temperature of the BAT or RWST not within specified limits, since the station is already at shutdown conditions. Suspending all operations involving core alterations or positive reactivity changes is an immediate action that precludes dependence on these borated water sources should they become inoperable for any reason.

The required minimum temperature of ≥ 65°F for the Boric Acid Storage System (BAT) ensures that the minimum solubility temperature for the specified boric acid concentration of the BAT is met, with margin.

The limits on boron concentration of the RWST also ensure that the water maintained in the RWST is compatible with MODE 5 shutdown concentration borated water in the refueling canal and does not represent a potential dilution source.

The required minimum temperature of ≥ 70°F for the RWST ensures that the contained water temperature will be consistent with the temperature range required for Low Temperature Overpressure Protection, and also with Technical Specification 3.5.4, Refueling Water Storage Tank (ECCS), which becomes applicable in MODE

BASES (con't)

4. There is no required maximum temperature specified for use of the RWST as a borated water source because the LOCA analysis is not applicable in MODES 5 and 6, or in the lower end of MODE 4.

16.9 AUXILIARY SYSTEMS

16.9-12 BORATION SYSTEMS BORATED WATER SOURCES – OPERATING

COMMITMENT:

As a minimum, the following borated water source(s) shall be OPERABLE as required by SLC 16.9.8:

a. A Boric Acid Storage System with:

   1) A minimum contained borated water volume as presented in the CORE OPERATING LIMITS REPORT,

   2) A minimum boron concentration as presented in the CORE OPERATING LIMITS REPORT, and

   3) A minimum solution temperature of 65°F.

b. The refueling water storage tank with:

   1) A minimum contained borated water volume as presented in the CORE OPERATING LIMITS REPORT or Technical Specification Surveillance Requirement 3.5.4.2 whichever is larger,

   2) A minimum boron concentration as presented in the CORE OPERATING LIMITS REPORT,

   3) A minimum solution temperature of 70°F, and

   4) A maximum solution temperature 100°F.

APPLICABILITY:

MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures > 285°F.

REMEDIAL ACTION:

a. With the Boric Acid Storage System inoperable and being used as one of the above required borated water sources, restore the system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to at least 1% $\Delta k/k$

REMEDIAL ACTION (con't)

at 200°F; restore the Boric Acid Storage System to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

b. With the refueling water storage tank inoperable due to RWST boron concentration or temperature not within acceptable limits, restore the RWST to OPERABLE status within 8 hours in compliance with Technical Specification LCO 3.5.4, REQUIRED ACTION A, or proceed to shut down in compliance with Technical Specification LCO 3.5.4, REQUIRED ACTION C.

c. With the refueling water storage tank inoperable due to RWST minimum water volume not within acceptable limits, restore the RWST to OPERABLE status within 1 hour in compliance with Technical Specification LCO 3.5.4, REQUIRED ACTION B, or proceed to shut down in compliance with Technical Specification LCO 3.5.4, REQUIRED ACTION C.

TESTING REQUIREMENTS:

Each borated water source shall be demonstrated OPERABLE:

a. At least once per 7 days by:

    1) Verifying the boron concentration in the water,

    2) Verifying the contained borated water volume of the water source, and

    3) Verifying the Boric Acid Storage System solution temperature when it is the source of borated water.

b. At least once per 24 hours by verifying the refueling water storage tank temperature when the outside air temperature is either less than 70°F or greater than 100°F.

REFERENCES:

1. Letter from NRC to Gary R. Peterson, Duke, Issuance of Improved Technical Specifications Amendments for Catawba, September 30, 1998.
2. Catawba Technical Specification 3.5.4, Refueling Water Storage Tank (ECCS), through Amendments 187/180.
3. Core Operating Limits Report (COLR), Latest Release.
4. Safety Analysis Inputs Manual (SAIM), Latest Release.

BASES:

The Boration System Borated Water Sources ensures that negative reactivity control is available during each mode of facility operation.

In MODES 1, 2, and 3, and MODE 4 with RCS average temperature above 285°F., a minimum of two borated water sources are required to ensure single functional capability in the event an assumed failure renders one of the sources inoperable. The boration capability of either borated water source, in association with a flow path and charging pump, is sufficient to provide a SHUTDOWN MARGIN (SDM) from expected operating conditions of 1.3% Δk/k after xenon decay and cooldown to 200°F. The maximum expected boration capability requirement occurs at EOL from full power equilibrium xenon conditions. To maintain SDM for this condition a minimum water volume at a minimum boron concentration, as presented in the CORE OPERATING LIMITS REPORT, is required from the boric acid storage tanks or the refueling water storage tank.

A minimum contained water volume and boron concentration, as presented in the CORE OPERATING LIMITS REPORT (COLR), is required to be available from the borated water sources in MODES 1, 2, 3, and 4. This volume is based on the required volume for maintaining SDM, unusable volume (to allow for a full suction pipe), instrument error, and additional margin for conservatism as follows:

Boric Acid Tank

Required Volume for Maintaining SDM	presented in the COLR
Additional Margin (Unit 1) Additional Margin (Unit 2)	854 gallons 1,303 gallons
Unusable Volume (to maintain full suction pipe) 14" of water equivalent	7,230 gallons
Vortexing (4" of water above top of suction pipe)	2,066 gallons
Instrumentation Error (Based on Total Loop Acc. for 1 & 2 NV5740 loops) – 2" of water equivalent	1,550 gallons

Refueling Water Storage Tank

Required Volume for Maintaining SDM	presented in the COLR
Unusable Volume (below nozzle)	13,442 gallons
Instrument Inaccuracy	11,307 gallons

BASES (con't)

Vortexing	13,247 gallons
Additional Margin	3,504 gallons

The contained water volume limits include allowance for water not available because of discharge line location and other physical characteristics.

As documented in the Bases for Technical Specification 3.5.4, REQUIRED ACTION A.1, with RWST boron concentration or borated water temperature not within limits, they must be returned to within limits within 8 hours. Under these conditions, neither the boron injection subsystem, nor the ECCS or containment spray systems can perform their design function. Therefore, prompt operator action must be taken to restore the tank to OPERABLE condition. The 8 hour limit to restore the RWST temperature or boron concentration to within limits was developed considering the time required to change either the boron concentration or temperature and the fact that the contents of the tank are still available for injection.

As documented in the Bases for Technical Specification 3.5.4, REQUIRED ACTION B.1, with RWST inoperable for water volume not within limits, it must be restored to OPERABLE status within 1 hour. In this condition, neither the boron injection subsystem, nor the ECCS or containment spray systems can perform their design function. Therefore, prompt operator action must be taken to restore the tank to OPERABLE condition or to place the plant in a MODE in which the RWST is not required. The short time limit of 1 hour to restore the RWST to OPERABLE status is based on this condition simultaneously affecting redundant trains.

The required minimum temperature of ≥ 65°F for the Boric Acid Storage System (BAT) ensures that the minimum solubility temperature for the specified boric acid concentration of the BAT is met, with margin.

The limits on contained water volume and boron concentration of the RWST also ensure a pH value within an acceptable range for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

The required temperature range for the RWST ensures that the contained water temperature will be consistent with the temperature range required for Technical Specification 3.5.4, Refueling Water Storage Tank (ECCS). This range of ≥ 70°F and ≤ 100°F is compatible with the minimum and maximum values assumed in the safety analyses.

16.9 AUXILIARY SYSTEMS

16.9-24 ALTERNATE COOLING FOR CHARGING PUMPS

COMMITMENT:

The station Drinking Water System (YD) shall be in its normal alignment and capable of supplying an alternate cooling water source for the Unit 1A and Unit 2A Centrifugal Charging Pumps.

APPLICABILITY:

MODES 1, 2, 3,
MODE 4 with all RCS cold leg temperatures > 285°F.

REMEDIAL ACTION:

Return the station Drinking Water System to normal commitment alignment and service in accordance with Risk Assessment Matrix priorities.

TESTING REQUIREMENTS:

a. At least once per 7 days, verify YD pressure of at least 50 psig on the outlet of the station YD pressure regulating valves.

b. At least once per 18 months, verify adequate YD flow through the charging pump.

REFERENCES:

1. 10 CFR 50.65, Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.

2. CNC-1535.00-00-0008, Severe Accident Analysis Report, CNS PRA Risk Significant SSCs for the Maintenance Rule.

3. CNS-1554.NV-00-0001, Chemical and Volume Control Design Basis Specification.

4. SLC 16.9-9, Boration Systems Pumps – Shutdown.

5. SLC 16.9-10, Boration Systems Charging Pumps – Operating.

6. CNC-1223.04-00-0054, Unit 1 CNS YD CALC.

REFERENCES (con't)

7. CNC-1223.04-00-0055, Unit 2 CNS YD CALC.

8. WPM 608, Outage Risk Assessment Utilizing ORAM-SENTINEL.

9. WPM 609, Innage Risk Assessment Utilizing ORAM-SENTINEL.

BASES:

Effective implementation of the Maintenance Rule, 10 CFR 50.65, requires the continuous assessment of systems determined to be risk significant in the protection against core damage or radiation release. It has been determined through PRA numerical methods that the Chemical and Volume Control System (NV) is risk significant from the standpoint of supplying seal water to the reactor coolant pumps during a loss of Component Cooling (KC) event. This SLC serves two purposes. It defines the risk significance of the YD System and provides a method of tracking the Drinking Water System for the purposes of supporting 10 CFR 50.65 and WPM 608 or WPM 609.

The original SLC stated that the supply header pressure should be 60 psig. This pressure was intended to be the pressure on the supply side of the pressure regulating valves. With a design pressure drop of 10 psi across the regulating valves (CNM-1205.06-0410-001), the corresponding downstream pressure would be 50 psig. The pressure required to support NV pump operation has been determined to be 40 psig, per calculations CNC-1223.23-00-54 & 55. As a conservative measure and based on the calculations above, the pressure established to meet the COMMITMENT is 50 psig. 0YDPG5250 and/or 0YDPG5270 will be used to meet the weekly surveillance. During periods of high YD usage, the pressure as indicated on the gauges above may temporarily drop below the 50 psig value due to the operation of the pressure control valves. The intention of the 50 psig limit is for this to be an average value.

16.10 STEAM AND POWER CONVERSION SYSTEM

16.10-2 CONDENSER CIRCULATING WATER SYSTEM

COMMITMENT:

With the Condenser Cooling Water System (RC) partially or completely filled, the system boundaries within the Turbine Building and RC pump pit shall be in their normal alignment.

APPLICABILITY:

All Plant conditions which require the availability of the 6900/4160V Essential Transformers: (SATA, SATB, 1ATC, 1ATD, 2ATC, 2ATD) for EITHER Train and for EITHER Unit.

REMEDIAL ACTION:

Restore the RC System boundaries to the normal commitment alignment in accordance with the Risk Assessment Matrix priorities.

TESTING REQUIREMENTS:

None

REFERENCES:

1. CNS FSAR, Section 10.4.5.3
2. 10 CFR 50.65, Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.
3. SAAG File: 160 Severe Accident Analysis Report, CNS Probability Risk Assessment (PRA) Risk Significant SSCs for the Maintenance Rule.
4. WPM 608, Outage Risk Assessment Utilizing ORAM-SENTINEL.
5. WPM 609, Innage Risk Assessment Utilizing ORAM-SENTINEL.

BASES:

The effective implementation of the Maintenance Rule, 10 CFR 50.65, requires the continuous assessment of systems determined Risk Significant in the protection against Core Damage or Radiation Release. It has been determined through PRA numerical methods that this system function provides a significant contribution to the defense in the prevention of a Loss of Offsite Power Event. This SLC serves two purposes.

(1) It defines the Risk Significant concerns of the Condenser Circulating Water, RC System integrity with respect to flooding EITHER Units 6900/4160V Essential Transformers. A failure to control the RC system inventory while partially or completely full has the potential consequence of degrading the power function of the 6900/4160 V Essential Transformers for either or both units. Damage to these transformers may result in either the Loss of Offsite Power (LOOP) or a significant decrease in the defense of Accident Mitigating Equipment. The concern from this event includes either RC System of Unit 1 or Unit 2 leading to the affect on either Unit/Train transformers.

(2) This SLC also provides a method of tracking this function for intersystem configuration control of the Essential Transformers and their susceptibility to flooding through support of WPM 608 or WPM 609 and 10 CFR 50.65.