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16.2 APPLICABILITY

This section provides the general requirements applicable to each of the COMMITMENTS and Testing Requirements within Section 16.0, Selected Licensee Commitments (SLCs).

16.2.1 COMMITMENTS shall be met during the MODES or other specified conditions in the Applicability.

16.2.2 Upon discovery of a failure to meet a COMMITMENT, the associated REMEDIAL ACTION(S) shall be met, except as provided in SLC 16.2.10, SLC 16.2.11, and SLC 16.2.12. If the COMMITMENT is met or is no longer applicable prior to expiration of the specified time interval, completion of the REMEDIAL ACTION(S) is not required, unless otherwise stated.

16.2.3 Deleted.

16.2.4 COMMITMENTS including the associated REMEDIAL ACTIONS shall apply to each unit individually unless otherwise indicated as follows:

a. Whenever the COMMITMENT refers to systems or components which are shared by both units, the REMEDIAL ACTIONS will apply to both units simultaneously. This will be indicated in the REMEDIAL ACTIONS;

b. Whenever the COMMITMENT applies to only one unit, this will be identified in the APPLICABILITY section of the COMMITMENT; and

c. Whenever certain portions of a COMMITMENT contain operating parameters, setpoints, etc., which are different for each unit, this will be identified in parentheses or footnotes. (For example, "...flow rate of 54,000 cfm (Unit 1) or 43,000 cfm (Unit 2)...".)

16.2.5 Testing Requirements shall be met during the OPERATIONAL MODES or other specified conditions in the Applicability for individual COMMITMENTS unless otherwise stated in an individual Testing Requirement or Reference. Failure to meet a Testing Requirement, whether such failure is experienced during the performance of the Testing Requirement or between performances of the Testing Requirement, shall be failure to meet the COMMITMENT. Failure to perform a Testing Requirement within the specified Frequency shall be failure to meet the COMMITMENT except as provided in SLC 16.2.7. Testing Requirements do not have to be performed on non-functional equipment or variables outside specified limits.

16.2.6 The specified Frequency for each Testing Requirement is met if the Testing Requirement is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

For Frequencies specified as "once," the above interval extension does not apply.

If a Completion Time requires periodic performance on a "once per ..." basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this SLC are stated in the individual SLCs.

16.2.7 If it is discovered that a Testing Requirement was not performed within its specified Frequency, then compliance with the requirement to declare the COMMITMENT not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Testing Requirement. A risk evaluation shall be performed for any Testing Requirement delayed greater than 24 hours, and the risk impact shall be managed.

If the Testing Requirement is not performed within the delay period, the COMMITMENT must immediately be declared not met, and the applicable REMEDIAL ACTIONS must be entered.

When the Testing Requirement is performed within the delay period and the Testing Requirement is not met, the COMMITMENT must immediately be declared not met, and the applicable REMEDIAL ACTIONS must be entered.

16.2.8 Deleted.

16.2.9 Testing Requirements shall apply to each unit individually unless otherwise indicated as stated in SLC 16.2.4 for individual COMMITMENTS or whenever certain portions of a COMMITMENT contain testing parameters different for each unit, which will be identified in parentheses or footnotes.

16.2.10 Under certain extenuating circumstances, as determined appropriate by the Station Manager or his/her designee, it may be acceptable to deviate from the requirements of a COMMITMENT. Such deviation shall only be authorized for a limited time period (typically 14 days or less) and only after the appropriate justification has been prepared, approved, and concurred with by the Station Manager or his/her designee. This deviation shall be implemented in accordance with existing approved procedures. This is an exception to SLC 16.2.2.

16.2.11 Equipment removed from service or declared non-functional to comply with REMEDIAL ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its FUNCTIONALITY or the FUNCTIONALITY of other equipment. This is an exception to SLC 16.2.2 for the system returned to service under administrative control to perform the required testing to demonstrate FUNCTIONALITY.

16.2.12 When a supported system COMMITMENT is not met solely due to a support system COMMITMENT not being met, the Conditions and REMEDIAL ACTIONS associated with this supported system are not required to be entered. Only the support system REMEDIAL ACTIONS are required to be entered. This is an exception to SLC 16.2.2 for the supported system.

When a support system's REMEDIAL ACTION directs a supported system to be declared non-functional or directs entry into Conditions and REMEDIAL ACTIONS for a supported system, the applicable Conditions and REMEDIAL ACTIONS shall be entered in accordance with SLC 16.2.2.

16.5 REACTOR COOLANT SYSTEM

16.5-6 Reactor Coolant System (RCS) Vents

COMMITMENT One RCS vent path consisting of at least two valves in series powered from emergency buses shall be FUNCTIONAL and closed at each of the following locations:

a. Reactor vessel head, and

b. ----------NOTE----------
If using a power operated relief valve (PORV) as a vent path, the PORV block valve is not required to be closed if the PORV is OPERABLE (MODES 1, 2, and 3) or FUNCTIONAL (MODE 4).

Pressurizer steam space

APPLICABILITY: MODES 1, 2, 3, and 4.

REMEDIAL ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RCS vent path non-functional.	A.1 Initiate action to close and remove power from all valves in the non-functional vent path. AND A.2 Restore the non-functional vent path to FUNCTIONAL status.	Immediately 30 days

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Both RCS vent paths non-functional.	B.1 Initiate action to close and remove power from all valves in the non-functional vent paths. AND B.2 Restore at least one non-functional vent path to FUNCTIONAL status.	Immediately 72 hours
C. Required Action and associated Completion Time not met.	C.1 Initiate a Condition Report in accordance with the Corrective Action Program.	Immediately

TESTING REQUIREMENTS

TEST		FREQUENCY
TR 16.5-6-1	----------NOTE---------- This TR shall be performed during MODE 5 or MODE 6. ----------	
	Demonstrate that each RCS vent path is FUNCTIONAL by cycling each valve in the vent path through at least one complete cycle of full travel from the control room.	18 months

BASES

RCS vents are provided to exhaust noncondensible gases and/or steam from the primary system that could inhibit natural circulation core cooling. The FUNCTIONALITY of at least one RCS vent path from the reactor vessel head, and the pressurizer steam space ensures the capability exists to perform this function. There are no manual isolation valves in either RCS vent path.

BASES (continued)

The valve redundancy of the RCS vent paths serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a vent valve, power supply or control system does not prevent isolation of the vent path.

A Condition Report initiated from Action C should include evaluation of loss of function to exhaust non-condensable gases, loss of ability to provide inventory control for standby shutdown facility events as a letdown path, and loss of alternate letdown path for other accident events.

The function, capabilities, and testing requirements of the RCS vent systems are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plan Requirements", November 1980.

REFERENCES

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

16.6 ENGINEERED SAFETY FEATURES

16.6-4 Chlorine Detectors and Associated Circuitry

COMMITMENT Four chlorine detectors and associated circuitry (two per control room intake), with their Alarm Setpoints adjusted to actuate at a chlorine concentration of $\leq$ 5 ppm, shall be FUNCTIONAL.

APPLICABILITY: All MODES.

REMEDIAL ACTIONS

CONDITION		REQUIRED ACTION		COMPLETION TIME
A.	One chlorine detector and/or associated circuitry non-functional in one or both control room intakes.	A.1	Restore the non-functional equipment to FUNCTIONAL status.	30 days
B.	Required Action and associated Completion Time of Condition A not met.	B.1	----------NOTE---------- With both intakes isolated, both Control Room Area Ventilation System (CRAVS) trains are inoperable and the applicable Conditions and Required Actions of Technical Specification 3.7.10 shall be entered and followed. ---------- Isolate affected control room intake(s).	1 hour

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both chlorine detectors and/or associated circuitry non-functional in one or both control room intakes.	C.1 ----------NOTE---------- With both intakes isolated, both CRAVS trains are inoperable and the applicable Conditions and Required Actions of Technical Specification 3.7.10 shall be entered and followed. ---------- Isolate affected control room intake(s).	Immediately

TESTING REQUIREMENTS

TEST		FREQUENCY
TR 16.6-4-1	Perform COT.	6 months
TR 16.6-4-2	Perform CHANNEL CALIBRATION.	18 months

BASES

The FUNCTIONALITY of the chlorine detectors and associated circuitry is provided as a defense-in-depth measure to ensure that sufficient capability is available to promptly detect and respond to an accidental chlorine release. The capability for the protection of control room personnel is consistent with the recommendations of Regulatory Guide 1.95, Revision 1, January 1977, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release."

Regulatory Guide 1.95 states in Section C.2 that the capability to manually isolate the control room should be provided "... if a chlorine container having an inventory of 150 lbs. or less is stored more than 100 meters from the control room or its fresh air intakes...." All chlorine containers at Catawba are stored or used at least 158 meters (520 feet) from the nearest control room outside air intake and the inventory of chlorine in any single "container" is less than or equal to 100 lbs. (Note that Catawba only uses 50-lb. cylinders with a maximum of two cylinders manifolded together.) Thus, automatic isolation/closure of an intake is

BASES (continued)

not required and it is acceptable to leave an intake open for a limited time period even if a single detector on an intake were to alarm. This follows the implied logic of the Regulatory Guide that if the quantity of gaseous chlorine onsite is small enough, it is not credible to assume a chlorine container failure results in a significant impact to the control room. This position is documented in calculation CNC-1211.00-00-0124.

The REMEDIAL ACTIONS described above are consistent with the guidance provided in Regulatory Guide 1.78, Revision 0, June 1974, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," and Regulatory Guide 1.95. Regulatory Guide 1.78 states in Section C.3 that "... the release of any hazardous chemical to be stored on the nuclear plant site in a quantity greater than 100 lbs. should be considered..." for its impact on control room habitability. Catawba does not allow any gaseous chlorine containers greater than 100 lbs. on site. There are also no credible accident scenarios that would cause the failure of more than 100 lbs. of chlorine.

REFERENCES

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

2. Letter from NRC to G.R. Peterson, Duke, Issuance of Amendments 191/183, June 28, 2001.

16.7 INSTRUMENTATION

16.7-9 Standby Shutdown System (SSS)

COMMITMENT The SSS shall be FUNCTIONAL.

APPLICABILITY: MODES 1, 2, and 3.

REMEDIAL ACTIONS

CONDITION		REQUIRED ACTION		COMPLETION TIME
A.	SSS non-functional.	A.1	Restore SSS to FUNCTIONAL status.	7 days
B.	Total accumulative LEAKAGE from unidentified LEAKAGE, identified LEAKAGE, and reactor coolant pump seal LEAKAGE > 20 gpm.	B.1	Declare the standby makeup pump non-functional and enter Condition A.	Immediately
C.	A required cell in a 24-Volt battery bank is < 1.36 volts on float charge.	C.1	Enter Condition A.	Immediately
D.	Required Action and associated Completion Time of Condition A not met.	D.1	Prepare and submit a Special Report to the NRC outlining the extent of repairs required, schedule for completing repairs, and basis for continued operation.	14 days

TESTING REQUIREMENTS

	TEST	FREQUENCY
TR 16.7-9-1	Verify that the electrolyte level of each SSS diesel starting 24-Volt battery is $\geq$ the low mark and $\leq$ the high mark.	7 days
TR 16.7-9-2	Verify that the overall SSS diesel starting 24-Volt battery voltage is $\geq$ 24 volts on float charge.	7 days
TR 16.7-9-3	Verify that the requirements of SLC 16.9-21 are met and the boron concentration in the storage pool is $\geq$ the minimum specified in the COLR.	7 days
TR 16.7-9-4	Verify the fuel level in the SSS diesel generator fuel storage tank is $\geq$ 67 inches.	31 days
TR 16.7-9-5	Verify the SSS diesel generator starts from ambient conditions and operates for $\geq$ 30 minutes at $\geq$ 700 kW.	31 days
TR 16.7-9-6	Verify that the electrolyte level of each SSS 250/125-Volt battery is above the plates.	31 days
TR 16.7-9-7	Verify the total SSS 250/125-Volt battery terminal voltage is $\geq$ 258/129 volts on float charge.	31 days
TR 16.7-9-8	Perform CHANNEL CHECK of each SSS instrumentation device.	31 days
TR 16.7-9-9	Verify the fuel oil properties of new and stored fuel oil for the SSS diesel generator are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
TR 16.7-9-10	Verify that the individual battery cell voltage of the required cells in the SSS diesel starting 24-Volt battery is $\geq$ 1.36 volts on float charge.	92 days

(continued)

TESTING REQUIREMENTS (continued)

	TEST	FREQUENCY
TR 16.7-9-11	Verify that the Standby Makeup Pump's developed head at the test flow point is ≥ the required developed head, in accordance with the Inservice Testing Program.	92 days
TR 16.7-9-12	Verify that the specific gravity of the SSS 250/125-Volt battery is appropriate for continued service of the battery.	92 days
TR 16.7-9-13	Subject the SSS diesel generator to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service.	18 months
TR 16.7-9-14	Verify that the SSS diesel starting 24-Volt batteries, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration.	18 months
TR 16.7-9-15	Verify that the SSS diesel starting 24-Volt battery-to-battery and terminal connections are clean, tight, and free of corrosion.	18 months
TR 16.7-9-16	Verify that the SSS 250/125-Volt batteries, cell plates, and battery racks show no visual indications of physical damage or abnormal deterioration.	18 months
TR 16.7-9-17	Verify that the SSS 250/125-Volt battery-to-battery and terminal connections are clean, tight, free of corrosion, and coated with anti-corrosion material.	18 months
TR 16.7-9-18	Verify that the steam turbine driven auxiliary feedwater pump and controls from the Standby Shutdown Facility function as designed from the SSS.	18 months
TR 16.7-9-19	Perform CHANNEL CALIBRATION of each SSS instrumentation device.	18 months

(continued)

TESTING REQUIREMENTS (continued)

TEST		FREQUENCY
TR 16.7-9-20	Verify proper installation of pressurizer insulation.	18 months
TR 16.7-9-21	Verify pressurizer heaters powered from the SSS have a capacity of $\geq$ 63.5 kW measured at motor control center SMXG.	18 months
TR 16.7-9-22	Verify flowpath from the reactor vessel head through the valves powered from the SSS is unobstructed.	18 months

BASES

The SSS is designed to mitigate the consequences of certain postulated fire, security, and station blackout incidents by providing capability to maintain MODE 3 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 50.48(c).

When the SSS is under Condition A and it is anticipated that Condition D will be utilized, establish the bases for continued operation (including any supporting actions) prior to entering Condition D. Risks associated with the continued operation under Condition D are evaluated and managed through existing processes and procedures. These risk contributors, risk insights, risk-informed information, and/or risk mitigation actions assessed and managed during periods when Condition D is applied, are to be included in the 14-day special report.

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 FUNCTIONALITY. 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

BASES (continued)

instrument inaccuracy, and for the predicted increase in seal leakoff rate due to heatup of the reactor coolant pump seal injection water supply temperature following the SSS 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 reactor coolant system inventory is maintained at MODE 3 conditions. The supporting evaluation is provided in CNC-1223.04-00-0072 (Ref. 4).

A visual inspection of the diesel starting 24-volt batteries, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance. Since the battery cell jars are not transparent, a direct visual inspection of the cell plates cannot be performed. Instead, the cell plates are inspected for physical damage and abnormal deterioration by: 1) visually inspecting the jar sides of each cell for excessive bowing and/or deformation, and 2) visually inspecting the electrolyte of each cell for abnormal appearance.

Verifying individual cell voltage while on float charge for the SSS diesel starting 24-Volt batteries ensures that each cell is capable of supporting its intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or battery cell) in a fully charged state. The battery cell voltage limit of 1.36 volts is consistent with the nominal design voltage of the battery and is based on the manufacturer's recommended minimum float charge voltage for a fully charged cell with adequate capacity. The 24-Volt starting battery is designed with two battery banks, each battery bank contains 20 individual battery cells. The 24-Volt starting battery has sufficient capacity margin to maintain SSS diesel starting functionality with one cell in each battery bank to be fully degraded with a voltage < 1.36 volts. The 24-Volt starting battery is required to have 19 individual battery cells per battery bank to maintain SSS diesel starting functionality with sufficient capacity margin. The battery sizing calculation accounts for one degraded cell in each battery bank by assuming the degraded cells undergo a worst case polarity reversal during SSS diesel starting. The supporting evaluation is provided in CNC-1381.06-00-0056 (Ref.12).

Verification of proper installation of pressurizer insulation ensures that pressurizer heat losses during an SSS event do not exceed the capacity of the pressurizer heaters powered from the SSS.

Testing of the pressurizer heater capacity ensures the full capacity of the heaters is available to maintain a steam bubble in the pressurizer during an SSS event. The acceptance criterion includes an allowance for the voltage drop in the power cables between the SSS and the pressurizer and measurement uncertainty.

BASES (continued)

Testing of the flowpath from the reactor vessel head to the pressurizer relief tank ensures sufficient flow capacity for reactor coolant inventory control during an SSS event.

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.
6. Catawba Technical Specification Amendments 206/200, July 10, 2003.
7. Catawba UFSAR, Section 18.2.4.
8. Catawba License Renewal Commitments, CNS-1274.00-00-0016, Section 4.5.
9. CNC-1223.03-00-0033, Determination of Pressurizer Heater Capacity Powered from the SSF Diesel.
10. Catawba Nuclear Station 10 CFR 50.48(c) Fire Protection Safety Evaluation (SE).
11. 10 CFR 50.48(c), Fire Protection.
12. CNC-1381.06-00-0056, SSF Diesel Generator Battery Sizing Calculation.
13. UFSAR Table 18-1.
14. UFSAR Section 18.3.1.

16.9 AUXILIARY SYSTEMS

16.9-22 Control Room Area Ventilation System (CRAVS) - Intake Alarms

COMMITMENT

----------NOTE----------
Applicable to the CRAVS smoke alarms only. The chlorine detection alarm is addressed in SLC 16.6-4, Chlorine Detectors and Associated Circuitry and the CRAVS radiation detection alarm is addressed in SLC 16.7-10, Radiation Monitoring for Plant Operations.

The CRAVS Intake Alarms shall be FUNCTIONAL.

APPLICABILITY: All MODES.

REMEDIAL ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CRAVS smoke intake alarm non-functional for one or both control room intakes.	A.1 Establish a fire watch patrol once per hour at the affected control room intake(s).	1 hour

TESTING REQUIREMENTS

TEST	FREQUENCY
TR 16.9-22-1 Verify that on a Smoke Density – High test signal, an alarm is received in the control room.	18 months

BASES

The CRAVS Intake Alarms provide operator information relative to smoke, chlorine and radiation concentrations at each control room intake. Operators use this information to align the CRAVS to ensure that the control room will remain habitable for operations personnel during and following accident conditions.

The REMEDIAL ACTION for non-functional smoke intake alarms is consistent with that for non-functional fire detection instrumentation. The fire detection instrumentation requirements are discussed in SLC 16.9-6, Fire Detection Instrumentation.

REFERENCES

1. Letter from NRC to Gary R. Peterson, Duke, Issuance of Improved Technical Specifications Amendments for Catawba, September 30, 1998.
2. SLC 16.6-4, Chlorine Detectors and Associated Circuitry
3. SLC 16.7-10, Radiation Monitoring for Plant Operations