TS 5.5.14

Progress Energy

Serial: RNP-RA/11-0002

JAN 1 2 2011

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

TRANSMITTAL OF TECHNICAL SPECIFICATIONS BASES REVISIONS

Ladies and Gentlemen:

In accordance with Technical Specifications 5.5.14.d, Carolina Power and Light Company, also known as Progress Energy Carolinas, Inc., is transmitting revisions to the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, Technical Specifications Bases. The attachment to this letter provides Technical Specifications Bases pages for Revisions Number 40 through 42.

If you have any questions concerning this matter, please contact me at (843) 857-1626.

Sincerely,

Curt Castell

Curt Castell
Supervisor – Licensing/Regulatory Programs

RAC/rac

Attachment

c: L. A. Reyes, NRC, Region II
NRC Resident Inspector, HBRSEP
B. Mozafari, NRC, NRR

Progress Energy Carolinas, Inc.
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3581 West Entrance Road
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A001
NRR

United States Nuclear Regulatory Commission
Attachment to Serial: RNP-RA/11-0002
9 Pages (including cover page)

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

TECHNICAL SPECIFICATIONS
BASES PAGES FOR REVISIONS NUMBER 40 THROUGH 42

BASES

APPLICABILITY (continued)

In MODES 5 and 6, plant conditions are such that the risk significance of loss of seal injection to the RCPs is significantly reduced. Therefore, CVCS OPERABILITY requirements in these MODES are not maintained in Technical Specifications.

ACTIONS

A.1

With one required charging pump inoperable, the inoperable pump must be returned to OPERABLE status within 24 hours. The 24 hour Completion Time is reasonable, based upon the original licensing basis.

B.1

With one Makeup Water Pathway inoperable, the inoperable components must be returned to OPERABLE status within 24 hours. The 24 hour Completion Time is consistent with the time permitted to restore an inoperable charging pump to OPERABLE status. Because there are two means of establishing Makeup Water Pathways, the remaining OPERABLE pathway will provide the required source of makeup water.

A footnote allows for a 72 hour completion time for the remainder of Cycle 26 based on License Amendment No. 223.

C.1 and C.2

If the inoperable components identified in Required Actions A.1 and B.1 cannot be returned to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

D.1, D.2, and D.3

If seal injection to any RCP is not within limit and both required charging pumps are inoperable, adequate makeup to the RCP seals is not assured. In addition, adequate makeup to the RCS is not assured and the RCS inventory will begin to reduce. Backup cooling is provided to the RCP seals by the Component Cooling Water System. Since adequate means of

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

14. Steam Generator Water Level–Low, Coincident With Steam Flow/Feedwater Flow Mismatch (continued)

maintain SG level. In MODE 3, 4, 5, or 6, the SG Water Level–Low coincident with Steam Flow/Feedwater Flow Mismatch Function does not have to be OPERABLE because the reactor is not operating or even critical. Decay heat removal is accomplished by the AFW and MFW Systems in MODE 3 and by the RHR System in MODE 4, 5, or 6. The MFW System is in operation only in MODE 1 or 2 and, therefore, this trip Function need only be OPERABLE in these MODES.

15. Turbine Trip

a. Turbine Trip–Low Auto-Stop Oil Pressure

The Turbine Trip–Low Auto-Stop Oil Pressure trip Function anticipates the loss of heat removal capabilities of the secondary system following a turbine trip. This trip Function acts to minimize the pressure/temperature transient on the reactor. Any turbine trip from a power level below the P-8 setpoint, approximately 40% power, will not actuate a reactor trip. Three pressure switches monitor the auto-stop oil pressure in the Turbine Trip System. A low pressure condition sensed by two-out-of-three pressure switches will actuate a reactor trip. These pressure switches do not provide any input to the control system. The unit is designed to withstand a complete loss of load and not sustain core damage or challenge the RCS pressure limitations. Core protection is provided by the Pressurizer Pressure–High trip Function and RCS integrity is ensured by the pressurizer safety valves.

The LCO requires three channels of Turbine Trip–Low Auto-Stop Oil Pressure to be OPERABLE in MODE 1 above P-8.

Below the P-8 setpoint, a turbine trip does not actuate a reactor trip. In MODE 3, 4, 5, or 6, there is no potential for a turbine trip, and the Turbine Trip–Low Auto-Stop Oil Pressure trip Function does not need to be OPERABLE.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

b. Turbine Trip–Turbine Stop Valve Closure

The Turbine Trip–Turbine Stop Valve Closure trip Function anticipates the loss of heat removal capabilities of the secondary system following a turbine trip from a power level above the P-8 setpoint, approximately 40% power. This action will actuate a reactor trip. The trip Function anticipates the loss of secondary heat removal capability that occurs when the stop valves close. Tripping the reactor in anticipation of loss of secondary heat removal acts to minimize the pressure and temperature transient on the reactor. This trip Function will not and is not required to operate in the presence of a single channel failure. The unit is designed to withstand a complete loss of load and not sustain core damage or challenge the RCS pressure limitations. Core protection is provided by the Pressurizer Pressure–High trip Function, and RCS integrity is ensured by the pressurizer safety valves. This trip Function is diverse to the Turbine Trip–Low Auto-Stop Oil Pressure trip Function. Each turbine stop valve is equipped with one limit switch that inputs to the RPS. If both limit switches indicate that the stop valves are closed, a reactor trip is initiated.

The limit switches are set to assure channel trip occurs when the associated stop valve is closed.

The LCO requires two Turbine Trip–Turbine Stop Valve Closure channels, one per valve, to be OPERABLE in MODE 1 above P-8. Both channels must trip to cause reactor trip.

Below the P-8 setpoint, a load rejection can be accommodated by the Steam Dump System. In MODE 3, 4, 5, or 6, there is no potential for a load rejection, and the Turbine Trip–Stop Valve Closure trip Function does not need to be OPERABLE.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

b. Low Power Reactor Trips Block, P-7 (continued)

(1) on increasing power, the P-7 interlock automatically enables reactor trips on the following Functions:

- Pressurizer Pressure–Low;
- Pressurizer Water Level–High;
- Reactor Coolant Flow–Low (Two Loops);
- RCPs Breaker Open (Two Loops); and
- Undervoltage RCPs

These reactor trips are only required when operating above the P-7 setpoint (approximately 10% power). The reactor trips provide protection against violating the DNBR limit. Below the P-7 setpoint, the RCS is capable of providing sufficient natural circulation without any RCP running.

(2) on decreasing power, the P-7 interlock automatically blocks reactor trips on the following Functions:

- Pressurizer Pressure–Low;
- Pressurizer Water Level–High;
- Reactor Coolant Flow–Low (Two Loops);
- RCP Breaker Position (Two Loops); and
- Undervoltage RCPs

Trip Setpoint and Allowable Value are not applicable to the P-7 interlock because it is a logic Function and thus has no parameter with which to associate an LSSS.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

b. Low Power Reactor Trips Block, P-7 (continued)

The P-7 interlock is a logic Function with train and not channel identity. Therefore, the LCO requires one channel per train of Low Power Reactor Trips Block, P-7 interlock to be OPERABLE in MODE 1.

The low power trips are blocked below the P-7 setpoint and unblocked above the P-7 setpoint. In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the interlock performs its Function when power level drops below 10% power, which is in MODE 1.

c. Power Range Neutron Flux, P-8

The Power Range Neutron Flux, P-8 interlock is actuated at approximately 40% power as determined by two-out-of-four NIS power range detectors. The P-8 interlock automatically enables the Turbine Trip, and the Reactor Coolant Flow-Low (Single Loop) and RCP Breaker Position (Single Loop) reactor trips on low flow in one or more RCS loops on increasing power. The LCO requirement for this trip Function ensures that protection is provided against a loss of flow in any RCS loop that could result in DNB conditions in the core when greater than approximately 40% power. On decreasing power, the reactor trip on turbine trip and low flow in any loop is automatically blocked.

The LCO requires four channels of Power Range Neutron Flux, P-8 interlock to be OPERABLE in MODE 1. In MODE 1, a loss of flow in one RCS loop could result in DNB conditions, so the Power Range Neutron Flux, P-8 interlock must be OPERABLE. In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the core is not producing sufficient power to be concerned about DNB conditions.

d. Power Range Neutron Flux, P-10

The Power Range Neutron Flux, P-10 interlock is actuated at approximately 10% power, as

(continued)

BASES

ACTIONS

N.1 and N.2 (continued)

a MODE where the LCO is no longer applicable. This trip Function does not have to be OPERABLE below the P-8 setpoint because other RPS trip Functions provide core protection below the P-8 setpoint. The 6 hours allowed to restore the channel to OPERABLE status or place in trip and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7.

O.1 and O.2

Condition O applies to the RCP Breaker Position (Single Loop) reactor trip Function. There is one breaker position device per RCP breaker. With one channel inoperable, the inoperable channel must be restored to OPERABLE status within 6 hours. If the channel cannot be restored to OPERABLE status within the 6 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours. This places the unit in a MODE where the LCO is no longer applicable. This Function does not have to be OPERABLE below the P-8 setpoint because other RPS Functions provide core protection below the P-8 setpoint. The 6 hours allowed to restore the channel to OPERABLE status and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7.

P.1 and P.2

Condition P applies to Turbine Trip on Low Auto-Stop Oil Pressure or on Turbine Stop Valve Closure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 6 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-8 setpoint within the next 4 hours. The 6 hours allowed to place the inoperable channel in the tripped condition and the 4 hours allowed for reducing power are justified in Reference 7.

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.4 DC Sources - Operating

BASES

BACKGROUND

The station DC electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety related equipment and preferred AC instrument bus power (via inverters). As required by HBRSEP Design Criteria (Ref.1), the DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single active failure.

The 125 VDC electrical power system consists of two separate and redundant safety related DC electrical power subsystems (Train A and Train B). Each subsystem consists of one station 125 VDC battery, one primary (in service) battery charger for the battery, and all the associated control equipment and interconnecting cabling.

Two 100% capacity battery chargers are installed to support system operation. One charger is designated as the in service unit and the other is designated as the standby unit, which provides backup service in the event that the in service battery charger is out of service. If the standby battery charger is substituted for one of the in service battery chargers, then the requirements of redundancy between subsystems are maintained.

During normal operation, the 125 VDC load is powered from the battery chargers with the batteries floating on the system. In case of loss of normal AC power to the battery charger, the battery charger trips and the DC load is automatically powered from the station batteries. The in service unit automatically restarts and the standby unit requires a manual restart when power is restored. The manual restart is required due to capacity margin associated with the EDG.

The Train A and Train B DC electrical power subsystems provide the control power for its associated AC power load group, 4.16 kV switchgear, and 480 V breakers. The DC electrical power subsystems also provide DC electrical power to the inverters, which in turn power four of the eight instrument buses.

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.1 AC Sources—Operating

BASES

BACKGROUND

The unit AC Electrical Power Distribution System AC sources consist of the offsite power source (preferred power source), and the onsite standby power sources (Train A and Train B diesel generators (DGs)). As required by HBRSEP design criteria (Ref. 1), the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Feature (ESF) systems.

The onsite emergency AC Distribution System is divided into redundant load groups (trains) so that the loss of any one group does not prevent the minimum safety functions from being performed. Each train has connections to the preferred offsite power source and a single DG.

Offsite power is supplied to the unit switchyard(s) from the transmission network by multiple transmission lines. The 480 V ESF bus E2 is normally powered from the 115 kV switchyard through the startup transformer, 4.160 kV bus 3 and station service transformer 2G. The 480 V ESF bus E1 is normally powered from the turbine generator through the unit auxiliary transformer, 4.160 kV buses 1 and 2 and station service transformer 2F. A main generator lockout causes 4.160 kV buses 1 and 2 to be automatically transferred to the startup transformer which results in 480 V ESF bus E1 being supplied from the startup transformer.

Should a failure of the startup transformer occur, a spare startup transformer located onsite can be jumpered into service. During the time that the startup transformer is out of service, the unit auxiliary transformer is capable of supplying power to the onsite distribution system while powered from the turbine generator or by back-feeding the main transformer from the 230 kV switchyard. The unit auxiliary transformer powered from the turbine generator is not a qualified offsite circuit. Prior to back-feeding the main transformer from the 230 kV switchyard, the generator must be disconnected from the main transformer by removing

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10 CFR 55.40

Progress Energy

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JAN 13 2011

Mr. Richard S. Baldwin
Senior Operations Engineer, Department of Reactor Safety
U. S. Nuclear Regulatory Commission - Region II
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

REACTOR OPERATOR AND SENIOR REACTOR OPERATOR INITIAL EXAMINATIONS

Dear Mr. Baldwin:

In accordance with the guidelines in Revision 9, Supplement 1, of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Carolina Power and Light Company, now doing business as Progress Energy Carolinas, Inc., is providing the enclosed operating test, written examination, and the supporting reference materials identified in Attachment 3 to ES-201, "Reference Material Guidelines For Initial Licensing Examinations," for examinations scheduled to begin the week of February 28, 2011.

As required by Attachment 1 of Revision 9, Supplement 1, of NUREG-1021, Section ES-201, "Examination Security and Integrity Considerations," please ensure that these examination materials are withheld from public disclosure until after the examinations are complete.

If you have any questions concerning this matter, please contact Mr. James Edwards at (843) 857-1558.

Sincerely,

Chris Kamilaris
Manager – Support Services – Nuclear

CSK/cac

Enclosure

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