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Serial: RNP-RA/13-0067

10 CFR 50.90

SEP 1 0 2013

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

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

LICENSE AMENDMENT REQUEST TO MODIFY TECHNICAL SPECIFICATION (TS) 3.4.12, LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Duke Energy Progress, Inc., formerly known as Carolina Power and Light Company, hereby requests an amendment to the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBRSEP) renewed facility operating license DPR-23, Appendix A, Technical Specifications.

The proposed amendment would modify TS Surveillance Requirement (SR) 3.4.12.6, of TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System, with a Note that does not require that the surveillance be performed until 12 hours after decreasing the reactor coolant system (RCS) cold leg temperature to less than or equal to (≤) 350°F which is the temperature when LTOP operability controlled by TS 3.4.12 is credited. In addition, the FREQUENCY requirement is modified to simply 31 days. The note and FREQUENCY requirement are in accordance with NUREG-1431, Revision 3 and support the fact that the 12 hour delay in performing the test provides the operators flexibility in priorities during the MODE 4 transition activities. In addition, the 12 hour acceptability is based on the limited probability of a low temperature overpressure event occurring during this time period. Once tested, the SR is performed every 31 days to ensure continued operability, which is the same requirement that is in the current approved HBRSEP Unit No. 2 TSs.

The Enclosure provides the basis for the proposed change, including a detailed description, technical and regulatory evaluations, environmental considerations, and Duke Energy Progress, Inc.'s determination that the proposed change does not involve a significant hazards consideration. The proposed marked-up and retyped Technical Specifications (TS) pages are provided in Attachments 1 and 2 to the Enclosure respectively. Marked-up TS Bases are included in Attachment 3 to the Enclosure for information.

Approval of the proposed amendment is requested by September 15, 2014. Once approved, the amendment shall be implemented within 120 days.

A001
NRR

The proposed change has been reviewed by the HBRSEP Plant Nuclear Safety Committee.

This letter contains no new Regulatory Commitments.

In accordance with 10 CFR 50.91(b), a copy of this application is being provided to the State of South Carolina. If you have any questions regarding this submittal, please contact Mr. Richard Hightower, Supervisor – Regulatory Affairs at (843) 857-1329.

I declare under penalty of perjury that the foregoing is true and correct. Executed On: September 10, 2013

Sincerely,

Sharon A. Wheeler-Peavyhouse

Sharon A. Wheeler-Peavyhouse
Manager – Support Services – Nuclear

SWP/sc

Enclosure

cc: Ms. S. E. Jenkins, Manager, Infectious and Radioactive Waste Management Section (SC)
Mr. V. M. McCree, NRC Region II
Mr. S. P. Lingam, NRC Project Manager, NRR
NRC Resident Inspectors, HBRSEP
Mr. A. Wilson, Attorney General (SC)

ENCLOSURE

Evaluation of Proposed Change to Technical Specification

Low Temperature Overpressure Protection (LTOP) System

ATTACHMENTS:

1- Marked-Up Technical Specifications Pages
2- Retyped Technical Specifications Pages
3- Marked-Up Technical Specifications Bases Pages (For Information Only)

1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, Duke Energy Progress, Inc., is hereby requesting an amendment to the H. B. Robinson Steam Electric Plant Unit No. 2 (HBRSEP) renewed facility operating license DPR-23, Appendix A, Technical Specifications (TS) 3.4.12, Low Temperature Overpressure Protection (LTOP) System.

The proposed amendment would modify TS SR 3.4.12.6, of TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System, with a Note that does not require that the surveillance be performed until 12 hours after decreasing the RCS cold leg temperature to ≤ 350°F which is the temperature when LTOP operability controlled by TS 3.4.12 is credited. In addition, the FREQUENCY requirement is modified to simply 31 days.

2.0 DETAILED DESCRIPTION

The proposed change modifies the SR 3.4.12.6 of TS 3.4.12 by including the following Note:

"----------Note----------
Not required to be performed until 12 hours after decreasing RCS cold leg temperature to ≤ 350°F."
---"

In addition, the FREQUENCY requirement for SR 3.4.12.6 has been simplified to: "31 days"

The proposed changes are in accordance with NUREG-1431, Revision 3 (Reference 1) and clarify the channel operational test (COT) testing requirements. The COT test is currently required to be performed along with the plant cooldown process and entry into MODE 4. This places a burden on the operators that could take their attention away from other more critical transitional activities. The proposed changes ensure that the COT testing can be performed in a reasonable time period after entry into MODE 4 during plant cooldown when the plant activities are likely less complicated. The simplification of the FREQUENCY requirement is also in accordance with NUREG-1431, Revision 3 and require that while in an applicable mode of operation the SR will be performed every 31 days to ensure continued operability. This is the same requirement that is currently approved in the HBRSEP TSs.

3.0 TECHNICAL EVALUATION

As described in the Updated Final Safety Analysis Report (UFSAR) Section 5.2.2, the Reactor Coolant System (RCS) is protected against overpressure by control and protective circuits such as the high pressure trip and by code relief valves connected to the top of the pressurizer. These Power-Operated Relief Valves (PORVs) and code safety valves are provided to protect against pressure surges which are beyond the pressure limiting capacity of the pressurizer spray.

For RCS operation below 350°F the PORVs are utilized to protect against exceeding safe pressure limits under low temperature conditions. A manual permissive switch is utilized to arm the low temperature overpressure protection (LTOP) channel (one for each PORV) before the RCS loop is below 350°F and capable of a solid water condition (no steam bubble in the pressurizer). Operating solid can produce extreme pressure spikes that are not encountered when there is the cushioning effect present from a steam bubble during normal plant operation. A non-redundant temperature comparator provides an annunciator signal when the RCS loop temperature drops below 365°F.

During normal plant operation, the permissive switch is not armed and the PORVs are not operable in the low temperature/overpressure mode. With the system not armed, a reduction in temperature below 365°F (normal cooldown procedures or abnormal conditions) causes the annunciator to energize signaling the operator to arm the overpressure protection system via the permissive switch. Redundancy for the arming function is provided by the plant operating procedures which require arming the system prior to decreasing RCS temperature to 350°F. When armed, the PORVs become operable. Exceeding the setpoint with the system armed causes the PORVs to open. The annunciator does not illuminate under normal conditions if the system was armed prior to the temperature dropping below 365°F. With the system armed below 365°F, the next energizing of the annunciator indicates the setpoint has been exceeded and the PORVs will open.

UFSAR Section 7.6.1 states that the PORVs are utilized to protect against exceeding safe pressure limits under low temperature conditions. Each PORV is opened by nitrogen, with a nitrogen accumulator and instrument air as backups. A separate nitrogen accumulator is provided for each PORV, capable of 100 valve operating cycles. The instrumentation system for the PORVs uses temperature and pressure inputs. Wide range temperature signals from all three RCS loops provide inputs to a low-auctioneer device. The low-auctioneer selects the lowest temperature to ensure using the most conservative measurement. The lowest loop temperature is then utilized as input to a function generator. The output of the function generator is utilized for comparison with a plant wide-range pressure signal via a signal comparator. One wide-range pressure transmitter is provided for each control channel. When the setpoint of the comparator is exceeded, the comparator's output activates a relay whose contacts activate the primary PORV solenoid and an annunciator in the Control Room to signal the condition.

As discussed in the Bases of TS 3.4.12, a PORV is OPERABLE for LTOP when its block valve is open, the PORV lift setpoint is within the limit required by the LTOP analyses and testing proves the PORV's ability to open at this setpoint, and motive power is available to the two PORVs and their control circuits.

To ensure PORV operability there are SRs that verify component condition, line up, setpoint, and capability to actuate. SR 3.4.12.5 verifies the associated block valve is open for each required PORV on a 72 hour Frequency, ensuring a flow path and SR 3.4.12.7 provides an instrument channel calibration every 18 months to ensure that the actuation channel is operable. SR 3.4.12.6 provides for a COT to verify the PORV lift setpoint is within the allowed maximum limits in the LTOP analyses and, as necessary, adjust that lift setpoint. Since PORV actuation could depressurize the RCS, it is not required during this testing.

As defined in the HBRSEP Unit No.2 TS, a COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of required alarm, interlock, display, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy. This definition is further clarified in the Bases for TS SR 3.4.12.8 in NUREG-1431, Revision 3 and provided in the HBRSEP Unit No.2 TS 3.4.12 Bases markup pages provided in Attachment 3 of this enclosure.

> "A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable COT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions."

The previously approved frequency for the SR 3.4.12.6 COT was once within 31 day prior to entering Modes 4, 5, and 6 when the reactor head is on and then every 31 days thereafter. However, when moving from Mode 3 into Mode 4 the LTOP setting can be verified when the RCS cold leg temperature reaches 350°F which is the Mode 4 entry temperature and the LTOP minimum arming setpoint. At that point the PORV lift setpoint can be reduced to the LTOP setting and the COT can be performed. Based on the requirements of the current approved SR 3.4.12.6 the performance of the COT would be required to take place at the moment the plant is entering Mode 4. This is a burden to the operators and potentially takes their focus away from other more critical activities during that transition.

The proposed change, which is in accordance with NUREG-1431, Revision 3, would allow performance of a COT within 12 hours after decreasing RCS cold leg temperature to ≤ 350°F and then re-performing the COT every 31 days while in an applicable mode of operation. The 12 hour delay in performing the test provides the operators flexibility in their priorities during the Mode 4 transition activities. In addition, the 12 hours acceptability is based on the limited probability of a low temperature overpressure event during that limited time period. The 31 day frequency after the initial testing has been proven to be acceptable to ensure the LTOP continued operability based on operating experience.

In conclusion, the proposed note does not significantly impact the safety of the plant. Allowing the operator to focus on mode transition activities without requiring immediate operability testing may enhance plant safety. With these proposed changes the HBRSEP TS will continue to protect the health and safety of the public.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements Criteria

Per HBRSEP UFSAR Sections 3.1.1.1 and 3.1.2, the General Design Criteria (GDC) in existence at the time HBRSEP Unit No.2 was licensed (July, 1970) for operation were contained in Proposed Appendix A to 10CFR50, General Design Criteria for Nuclear Power Plants, published in the Federal Register on July 11, 1967. (Appendix A to 10CFR50, effective in 1971 and subsequently amended, is somewhat different from the proposed 1967 criteria.) HBRSEP was

evaluated with respect to the proposed 1967 GDC and the original FSAR contained a discussion of the criteria as well as a summary of the criteria by groups.

The following provides discussion of the affects of the proposed change on capability of HBRSEP Unit No. 2 for continued compliance of the associated 1967 GDCs. 1967 GDC-9 Reactor Coolant Pressure Boundary -The LTOP is a protection system that ensures that the RCS boundary is not challenged during low temperature operation. The proposed change to the surveillance requirements does not affect operation of the LTOP system and does not affect the protective capabilities of the LTOP system. 1967 GDC-12 Instrument and Control Systems -The LTOP is a protection system that monitors and maintains operational parameters during low temperature operation. The proposed change to the surveillance requirements does not affect operation of the LTOP system and does not affect the protective monitoring or maintaining capabilities of the LTOP system. 1967 GDC-18 Monitoring Fuel and Waste Storage -The LTOP is a protection system that ensures that the RCS continues to provide adequate decay heat removal capabilities during low temperature operation. The proposed change to the surveillance requirements does not affect operation of the LTOP system and does not affect the protective capabilities of the LTOP system to ensure the RCS continues to provide adequate decay heat removal capabilities.

4.2 Precedent

NUREG-1431, Revision 3, Standard Technical Specifications Westinghouse Plants, dated June 2004, provides the guidance incorporated in this license amendment request. The bases for the guidance show that this change is acceptable and that there is no adverse affect on plant safety.

4.3 No Significant Hazards Consideration Determination

Duke Energy Progress, Inc. is submitting a request for an amendment to the Technical Specifications (TS), Appendix A of the Renewed Operating License No. DPR-23, for H. B. Robinson Steam Electric Plant. The proposed amendment would modify TS surveillance requirement (SR) 3.4.12.6, of TS 3.4.12, Low Temperature Overpressure Protection (LTOP) System, with a Note that does not require that surveillance to be performed until 12 hours after decreasing the reactor coolant system (RCS) cold leg temperature to ≤ 350°F which is the temperature when LTOP operability controlled by TS 3.4.12 is credited. In addition, the FREQUENCY requirement is modified to simply, "31 days."

Duke Energy Progress, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   This license amendment request proposes allowing up to a 12 hour delay in performing the COT testing used to verify the LTOP lift setpoint following the RCS reaching the maximum temperature at which the LTOP is required to be operable. The pressurizer power operated relief valves (PORVs) are utilized to protect against exceeding safe

pressure limits under low temperature conditions. The system is in service whenever the plant is in Modes 4, 5 and 6 with the reactor head on and the RCS temperature is at ≤ 350°F. The proposed change does not affect the function of the LTOP or when that function is applicable for protection of the plant. The change only adjusts the required frequency of the initial surveillance testing after the LTOP has been put into service per plant procedures. The affected surveillance testing is not assumed to be an accident initiator and has no adverse affect on the operation of the LTOP system.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

This proposed change does not alter the design, function, or operation of any plant component and does not install any new or different equipment. The malfunction of safety related equipment, assumed to be operable in the accident analyses, would not be caused as a result of the proposed technical specification change. No new failure mode has been created and no new equipment performance burdens are imposed.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The pressurizer power operated relief valves (PORV) are utilized to protect against exceeding safe pressure limits under low temperature conditions. The system is in service whenever the plant is in Modes 4, 5 and 6 with the reactor head on and the RCS temperature at ≤ 350 °F. The proposed change does not affect the function of the LTOP or when that function is applicable for protection of the plant. The change only adjusts the required frequency of the initial surveillance testing after the LTOP has been put into service per plant procedures. In addition, these proposed changes may enhance plant safety and reliability because the delay in the required testing will allow the operators to focus on other critical transition activities during entry into Mode 4 operation.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Duke Energy Progress, Inc. concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. The proposed amendment would modify technical specification surveillance requirement SR 3.4.12.6, with a Note that allows the performing of a channel operational test to be delayed up to 12 hours after the low temperature overpressure protection (LTOP) system in service during plant cooldown. The proposed change has no affect on how the LTOP functions or provides protection.

The proposed amendment does not involve (i) a significant hazards consideration; (ii) a significant change in the types or significant increases in the amounts of any effluents that may be released offsite; or (iii) result in a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the amendment.

6.0 REFERENCES

1. NUREG-1431, Revision 3, Standard Technical Specifications Westinghouse Plants, dated June 2004.

United States Nuclear Regulatory Commission
Attachment 1 to Serial: RNP-RA/13-0067
2 Pages including this cover sheet

ATTACHMENT 1

MARKED-UP TECHNICAL SPECIFICATIONS PAGES

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.6	Perform a COT on each required PORV, excluding actuation. NOTE Not required to be performed until 12 hours after decreasing RCS cold leg temperature to ≤ 350°F.	Once within 31 days prior to entering MODE 4, 5, or 6 when reactor vessel head is on AND 31 days Thereafter
SR 3.4.12.7	Perform CHANNEL CALIBRATION for each required PORV actuation channel.	18 months

United States Nuclear Regulatory Commission
Attachment 2 to Serial: RNP-RA/13-0067
2 Pages including this cover sheet

ATTACHMENT 2

RETYPED TECHNICAL SPECIFICATIONS PAGES

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.6	----------Note---------- Not required to be performed until 12 hours after decreasing RCS cold leg temperature to ≤ 350°F. ---------- Perform a COT on each required PORV, excluding actuation.	31 days
SR 3.4.12.7	Perform CHANNEL CALIBRATION for each required PORV actuation channel.	18 months

ATTACHMENT 3

MARKED-UP TECHNICAL SPECIFICATIONS BASES PAGES
(For Information Only)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.12.4 (continued)

b. Once every 31 days for a valve that is locked, sealed, or secured in position. A removed pressurizer safety valve fits this category.

The passive vent arrangement must only be open to be OPERABLE. This Surveillance is required to be met if the vent is being used to satisfy the pressure relief requirements of the LCO 3.4.12.b.

SR 3.4.12.5

The PORV block valve must be verified open every 72 hours to provide the flow path for each required PORV to perform its function when actuated. The valve must be remotely verified open in the main control room. This Surveillance is performed if the PORV satisfies the LCO.

The block valve is a remotely controlled, motor operated valve. The power to the valve operator is not required removed, and the manual operator is not required locked in the inactive position. Thus, the block valve can be closed in the event the PORV develops excessive leakage or does not close (sticks open) after relieving an overpressure situation.

The 72 hour Frequency is considered adequate in view of other administrative controls available to the operator in the control room, such as valve position indication, that verify that the PORV block valve remains open.

SR 3.4.12.6

Performance of a COT is required within 12 hours after decreasing RCS cold leg temperature to ≤ 350°F and every 31 days on each required PORV to verify and, as necessary, adjust its lift setpoint. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable COT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The COT will verify the setpoint is within the allowed maximum limits in the LTOP analysis. PORV actuation could depressurize the RCS and is not required.

To provide operators flexibility during MODE 4 transition activities a note has been added indicating that this SR is not required to be performed until 12 hours after decreasing RCS cold leg temperature to ≤ 350°F. The 12 hour FREQUENCY considers the unlikelihood of a low temperature overpressure event during this time. The COT is required to be performed within 12 hours after entering the LTOP MODES when the PORV lift setpoint is reduced to the LTOP setting. The 31 day FREQUENCY considers experience with equipment reliability.

Performance of a COT is required once within 31 days prior to enter in MODE 4, 5, or 6 when the reactor vessel head is on and every 31 days thereafter on each required PORV to verify and, as necessary, adjust its lift setpoint. The COT will verify the setpoint is within the allowed maximum limits in the LTOP analyses. PORV actuation could depressurize the RCS and is not required.

The Frequency of "Once within 31 days prior to entering MODE 4, 5, or 6 when the reactor vessel head is on AND 31 days

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.12.6 (continued)

~~thereafter" ensures that SR 3.4.12.6 is performed prior to entry into the MODES or specified condition of the Applicability and has been proven to be acceptable based on operating experience.~~

SR 3.4.12.7

Performance of a CHANNEL CALIBRATION on each required PORV actuation channel is required every 18 months to adjust the whole channel so that it responds and the valve opens within the required range and accuracy to known input.

REFERENCES

1. 10 CFR 50, Appendix G
2. Generic Letter 88-11.
3. UFSAR, Chapter 5.
4. Letter, RNP-RA/96-0141, CP&L (R. M. Krich) to NRC, "Request for Technical Specifications Change, Conversion to Improved Standard Technical Specifications Consistent with NUREG-1431, 'Standard Technical Specifications-Westinghouse Plants,' Revision 1," August 30, 1996, Enclosure 5.
5. Letter, NG-77-1215, CP&L (B. J. Furr) to NRC (R. W. Reid), "Reactor Vessel Overpressurization Protection," October 31, 1977.
6. Letter, NG-77-1426, CP&L (E. E. Utley) to NRC (R. W. Reid), "Response to Overpressure Protection System Questions," December 15, 1977.
7. Report, "Pressure Mitigating Systems Transient Analysis Results," prepared by Westinghouse Electric Corporation for the Westinghouse Owners Group on Reactor Coolant System Overpressurization, July 1977, and Supplement, September 1977.
8. 10 CFR 50, Section 50.46.

(continued)