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10 CFR 50.90

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
ATTENTION: Document Control Desk

Subject: Duke Energy Carolinas, LLC (Duke Energy)
McGuire Nuclear Station (MNS), Units 1 and 2
Docket Numbers 50-369 and 50-370, Renewed Facility Operating Licenses NPF-9 and NPF-17
Catawba Nuclear Station (CNS), Units 1 and 2
Docket Numbers 50-413 and 50-414, Renewed Facility Operating Licenses NPF-35 and NPF-52

Proposed Technical Specifications (TS) Amendment TS 3.7.10, "Control Room Area Chilled Water System" (MNS), and TS 3.7.11, "Control Room Area Chilled Water System" (CNS)

Pursuant to 10 CFR 50.90, Duke Energy is requesting amendments to the MNS and CNS Facility Operating Licenses and subject Technical Specifications (TS). This proposed license amendment request (LAR) modifies the TS by adding a new Action for both trains of Control Room Area Chilled Water Systems (CRACWS) inoperable. The new Action allows a finite time to restore one train to Operable status and requires periodic verification that Control Room temperature is maintained at or below 90°F.

The proposed LAR is modeled after TSTF-477, Rev. 3, "Add Action for Two Inoperable Control Room AC Subsystems." This TSTF is specific to the BWR NUREGs 1433 and 1434. Duke Energy has determined this TSTF is readily adaptable to a NUREG-1431 Standard TS for a Westinghouse plant. This topic was discussed with the NRC Staff on April 9, 2014. The proposed amendment is not being submitted under the Consolidated Line Item Improvement Process (CLIIP) process.

Attachment 1 provides Duke Energy's evaluation of the amendment, which contains a description of the proposed changes, the technical evaluation, the regulatory analysis, the determination that this LAR contains No Significant Hazards Considerations, the basis for the categorical exclusion from performing an Environmental Assessment/Impact Statement, and precedent for the LAR.

Attachment 2A provides the existing MNS TS pages marked-up to show the proposed changes. The reprinted TS pages will be provided to the NRC upon issuance of the approved amendment.

ADD1
NRR

Attachment 2B provides the existing CNS TS pages marked-up to show the proposed changes. The reprinted TS pages will be provided to the NRC upon issuance of the approved amendment.

Attachment 3A provides a portion of the existing MNS TS Bases pages marked-up to show the corresponding proposed Bases changes. The TS Bases change will be processed after LAR approval under the MNS Bases Control Program (TS 5.5.14).

Attachment 3B provides a portion of the existing CNS TS Bases pages marked-up to show the corresponding proposed Bases changes. The TS Bases change will be processed after LAR approval under the CNS Bases Control Program (TS 5.5.14).

This proposed LAR has been reviewed and approved by the MNS and CNS Plant Operations Review Committees in accordance with the requirements of the Duke Energy Quality Assurance Program.

In accordance with 10 CFR 50.91, Duke Energy is notifying the applicable state officials of this application for license amendment by transmitting a copy of this letter and its attachments to the designated officials.

This submittal will not impact the MNS or CNS Updated Final Safety Analysis Reports (UFSARs).

Duke Energy requests approval of this submittal within one calendar year of the submittal date and an implementation period of 60 days from the date of amendment issuance.

There are no regulatory commitments contained in this amendment.

Please direct any questions you may have in this matter to Lee A. Hentz at (980) 875-4187.

I declare under penalty of perjury that the foregoing is true and correct. Executed on January 7, 2016.

Sincerely,

for SDC acting McGuire Plant Manager

Steven D. Capps

Attachments

xc (with attachments):

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ATTACHMENT 1

EVALUATION OF PROPOSED AMENDMENT

1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, Duke Energy is requesting amendments to the McGuire Nuclear Station (MNS) and Catawba Nuclear Station (CNS) Facility Operating Licenses and subject Technical Specifications (TS). This proposed license amendment request (LAR) modifies MNS TS 3.7.10, "Control Room Area Chilled Water Systems," and corresponding CNS TS 3.7.11 by adding a new Action for both trains of Control Room Area Chilled Water Systems (CRACWS) inoperable. The new Action allows a finite time, 24 hours, to restore one train to Operable status and requires periodic verification that Control Room temperature is maintained at or below 90°F.

2.0 DETAILED DESCRIPTION

As discussed in a meeting with the NRC staff on April 9, 2014, the proposed LAR is modeled after TSTF-477, Rev. 3, "Add Action for Two Inoperable Control Room AC Subsystems." TSTF-477 is applicable only to BWR (General Electric) NUREGs 1433 and 1434, and adoption of this TSTF is available to BWRs via the Consolidated Line Item Improvement Process (CLIIP). Since the CNS and MNS TS are based on the Westinghouse NUREG-1431 Standard TSs, this Duke Energy LAR is not proposed to be processed via the CLIIP process. TSTF-477 adds a Condition to restore one Control Room AC subsystem within 72 hours in the event two Control Room AC subsystems become inoperable.

Since the Duke Energy meeting with the NRC staff, the Technical Specification Task Force has submitted a Traveler, TSTF-553, for NRC review. TSTF-553 is similar to TSTF-477 but is applicable to Westinghouse (NUREG-1431) and Babcock & Wilcox (NUREG-1430) plants and provides a Completion Time of 24 hours for both plant types in the event two Control Room AC subsystems become inoperable. TSTF-553 also includes a note that precludes use of the 24 hour allowance when the second train is intentionally made inoperable. Although TSTF-553 has not yet been reviewed or approved by the NRC, the LAR proposed by Duke Energy adopts the more conservative 24 hour Completion Time and the additional restriction regarding intentional entry into the Condition.

The proposed LAR revises MNS TS 3.7.10 and CNS TS 3.7.11 as follows:

a. Add a new Action B. New Action B applies when two CRACWS trains are inoperable. Required Action B.1 requires verification once per 4 hours that Control Room temperature is less than or equal to 90°F. Required Action B.2 requires restoration of one CRACWS train to operable status within 24 hours.

b. New Condition B is modified by a Note which states, "Not applicable when second CRACWS train intentionally made inoperable." If the second CRACWS train is intentionally made inoperable, there is no applicable Condition and immediate entry into LCO 3.0.3 is required.

c. Existing Action B, now renamed Action C, which applies when the Required Action and associated Completion Time of Condition A (one CRACWS train inoperable) is not met in MODES 1, 2, 3,or 4, is revised to also be applicable when the Required Actions and associated Completion Times of new Condition B are not met. Renumbered Condition C requires being in Mode 3 in 6 hours and Mode 5 in 36 hours.

d. Existing Action C, now renamed Action D, remains unchanged.

e. For MNS, existing Action D, now renamed Action E, which applies when two CRACWS trains are inoperable during movement of irradiated fuel assemblies or during core alterations, is revised to be applicable when the Required Actions and associated Completion Times of new Condition B are not met.

f. For CNS, existing Action D, now renamed Action E, which applies when two CRACWS trains are inoperable during movement of recently irradiated fuel assemblies, is revised to be applicable when the Required Actions and associated Completion Times of new Condition B are not met.

g. Existing Action E, which applied when two CRACWS trains are inoperable in MODE 1, 2, 3, or 4, and requires entry into LCO 3.0.3, is no longer needed and deleted (redundant to revised Condition C.).

The marked-up TS pages showing the proposed changes above are provided in Attachments 2A and 2B.

The corresponding TS Bases pages showing the proposed changes are provided in Attachments 3A and 3B. The TS Bases change will be processed after LAR approval under the MNS and CNS Bases Control Program (TS 5.5.14). They are provided in this LAR for information only.

3.0 TECHNICAL EVALUATION

3.1 TS System Descriptions

The CRACWS provides air temperature control for the Control Room, Control Room Area, and Switchgear Rooms. The Control Room Area (CRA) consists predominately of the Vital Battery and Equipment Rooms, Motor Control Center (MCC) rooms, and Cable Rooms. The Switchgear Rooms contain the essential switchgear. The CRA and Switchgear Rooms are not part of the Control Room Envelope and not governed by the CRACWS Technical Specifications.

The CRACWS consists of two independent and redundant trains. Each train consists of a chiller package, chilled water pump, air handling units with cooling coils, instrumentation, and controls.

The CRACWS is an emergency system, which also operates during normal unit operations. A single train will provide the required temperature control to maintain the Control Room at approximately 75°F for MNS and 74°F for CNS, respectively. The design basis of the CRACWS is to maintain the Control Room temperature for 30 days of continuous occupancy.

The CRACWS components are arranged in redundant, safety related trains. During emergency operation, the CRACWS maintains the Control Room temperature between 75°F and 90°F for MNS and between 72°F and 85°F for CNS, respectively. A single active failure of a component of the CRACWS, with a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for Control Room temperature control. The CRACWS is designed in accordance with Seismic Category I

requirements. The CRACWS is capable of removing sensible and latent heat loads from the Control Room, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment operability.

Two independent and redundant trains of the CRACWS are required to be operable to ensure that at least one is available, assuming a single failure disabling the other train. The CRACWS is shared between the two units. The system must be operable for each unit when that unit is in the Mode of Applicability.

The MNS and CNS Control Room Area Ventilation Systems (CRAVS) are governed by separate Technical Specifications; MNS TS 3.7.9 and CNS TS 3.7.10. The CRAVS is an emergency redundant system that provides a protected habitable environment for the Control Room Envelope from which occupants can control the Units following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. The CRAVS does not provide a protected habitable environment for the Control Room Area or Switchgear Rooms. The inoperability of CRACWS does not impact the operability of CRAVS.

The MNS CRACWS and CRAVS are described in MNS UFSAR Section 6.4. The CNS CRACWS and CRAVS are described in CNS UFSAR Section 9.4.

3.2 Adaptability of BWR TSTF-477 Rev.3 to a Westinghouse Plant

TSTF-477 Rev. 3, "Add Action for Two Inoperable Control Room AC Subsystems," was NRC approved for adoption in 2007. This BWR (GE) specific TSTF allows for two trains of Control Room cooling to be inoperable for up to 72 hours as long as the Control Room area temperature can be maintained (and monitored) within a pre-determined limit, commonly 90°F.

The 72 hour Completion Time was deemed reasonable considering that Control Room temperature is being maintained within limits and the low probability of an event occurring that would require Control Room area isolation. Alternate methods of maintaining control room temperature, such as non-safety grade air conditioning systems or fans, can also be used to maintain control room temperature. As previously stated in Section 2.0, Duke Energy will adopt the more conservative Completion Time of 24 hours proposed by TSTF-553.

TSTF-477 Rev. 3 is deterministically justified and relies on safety related cabinet equipment qualification (EQ) temperature limits and Control Room heat-up assumptions. For the GE plants, a GE Topical Report supports the EQ justification. Duke Energy has performed site specific confirmations that equipment qualification for Control Room safety related instrumentation and devices remains valid up to 90°F. Note MNS TS 3.7.10 and CNS TS 3.7.11 already contain a Surveillance Requirement (SR) that confirms the Control Room is 90°F or less every 12 hours.

As precedent, TSTF-477 Rev. 3 references other GE Technical Specifications that currently provide an Action with a finite time to restore one train to operable status when both trains are inoperable. MNS and CNS have similar Technical Specifications:

1. MNS and CNS TSs 3.3.3, "Post Accident Monitoring" (7 days).
2. MNS TS 3.7.11 and CNS TS 3.7.12, "Auxiliary Building Filtered Ventilation Exhaust System" (24 hours).

Duke Energy has also reviewed the Hope Creek and Edwin Hatch LARs, Request for Additional Information (RAIs), and the NRC Safety Evaluations (SE) that adopted TSTF-477 Rev. 3. Based on that review, Duke Energy did not identify an issue that could not be addressed at our plants and did not identify any GE/BWR specific requirements or conditions.

3.3 Operational Burden

Both MNS and CNS have experienced the inoperability of both trains of Control Room cooling. These occurred in 2005 and 2010 at MNS and in 2011 at CNS. With Control Room cooling being a shared system, these three events led to the initiation of a two unit shutdown.

For the MNS events, one Control Room cooling train was functional but not operable. Notice of Enforcement Discretion (NOEDs) were submitted and granted for MNS on both occasions to remain at power operation until one cooling train was restored to Operable status.

For the CNS event, the "A" cooling train was in planned maintenance when the "B" cooling train tripped due to a chiller controls system micro-processor failure. Both units initiated a shutdown and proceeded to Mode 3 while a NOED was processed to not proceed to Mode 4. The "A" cooling train was restored shortly thereafter.

As part of the 2010 NRC approved NOED, MNS committed to submit an LAR to address operability requirements of the Control Room cooling Technical Specification.

3.4 System Reliability Improvements

The 2005 MNS event was caused by a degraded oil pressure switch, which prohibited the "A" cooling train chiller compressor from starting. At the time, the redundant cooling train was functional but administratively inoperable due to support system alignments for refueling outage Engineered Safety Features (ESF) testing. The degraded oil pressure switch was replaced, and then in 2007, the original chiller controls were replaced with digital controls, which improved the reliability of the oil pressure switch function.

For the 2010 MNS event, the loss of the operating train of Control Room cooling was caused by high vibration of the hot gas bypass line (HGBP), which led to a breach of the coolant line. At the time, the redundant cooling train was in a planned maintenance evolution and temporarily unavailable.

Since 2010, both MNS Control Room cooling trains have been upgraded with new HGBP piping to reduce vibration interactions, vibration isolators have been installed, corroded and eroded service water piping has been replaced, small bore piping and tubing has been replaced, and piping analysis models were developed to identify potential thermal stresses. In addition, the condenser normal operating head pressure was reduced, which further reduced HGBP piping vibration.

After the 2011 CNS chiller micro-processor failure, significant efforts were made to determine the cause of the failure and to enable the chiller to be rapidly restarted. The failed micro-processor was sent to the original qualifier of the controls who, in concert with the original manufacturer of the controls, investigated the cause of the failure. The manufacturer has many years of in-service experience with this type of micro-processor and has experienced very few

failures. The failed micro-processor was subject to multiple tests, but the problem did not re-occur.

Both companies recommended that failures of this type be addressed by removing and reapplying power to the micro-processor, similar to how many computer related problems are addressed. This allows rapid re-start of the chiller. CNS has incorporated such actions into the current operating procedures. In addition, CNS maintenance procedures have been enhanced to provide direction on how to replace a micro-processor which can now be done very quickly. Since MNS utilizes the same chiller controls, similar operating and maintenance procedure enhancements were incorporated.

3.5 Control Room Equipment Temperature Limit Validation

MNS TS 3.7.10 and CNS TS 3.7.11 currently contain an SR that confirms the Control Room is 90°F or less every 12 hours. As such, the current licensed design temperature of the Control Room equipment remains unchanged by the proposed TS changes.

Duke Energy has also concluded that the 90°F limit in the new proposed TS Action B remains unchanged based on a review of design specifications for the respective Control Room safety related instruments and devices. Design specifications for protective equipment in the Control Room specify no loss of protective function over the temperature range of 40°F to 90°F and a humidity range of 15 to 95% relative humidity.

Therefore, monitoring of bulk Control Room temperature every 4 hours to ensure that ambient temperature is less than or equal to 90°F would verify that the Control Room temperature is at or below the design limit.

3.6 Application of Proposed Change

The most likely application of proposed Condition B and the associated Required Actions is when both CRACWS trains are inoperable but one train is functional with the ability to cool the Control Room. In this case, the Control Room temperature would remain constant at a normal value, and the 90°F limit is not challenged. One CRACWS would need to be restored to Operable status within 24 hours.

In the event both CRACWS trains are inoperable and non-functional, MNS and CNS have developed "Abnormal Procedures" (AP) to mitigate rising temperatures in the Control Room and take actions to shutdown the affected Units if temperature rises above 90°F, or there are indications of instrumentation malfunctions that have safety significance.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

General Design Criterion (GDC) 19, "Control Room" states in part:

> A Control Room shall be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition

under accident conditions, including loss-of-coolant accidents. Adequate radiation protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident.

The MNS and CNS Control Room Area Ventilation Systems (CRAVS) provide compliance with GDC 19. The CRAVS is an emergency redundant system that provides a protected habitable environment for the Control Room Envelope from which occupants can control the Units following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. The proposed changes to the CRACWS TS do not impact the operability of CRAVS.

In addition, the operability requirements of the CRACWS have not changed. The regulatory requirements do not specifically address Completion Times with inoperable systems. As a result, the regulatory requirements and criteria are not affected by the proposed change.

4.2 Precedents

Duke Energy has also reviewed the Hope Creek and Edwin Hatch LARs, RAIs, and NRC SEs that recently adopted TSTF-477 Rev. 3. Based on that review, Duke Energy did not identify an issue that could not be addressed at our plants and did not identify any GE/BWR specific requirements or conditions.

- PSEG Hope Creek Generating Station, LAR dated February 28, 2011 (ADAMS Accession No. ML110590636); as supplemented by letters dated August 29, 2011 (ML112420124), December 16, 2011 (ML113530205), and January 26, 2012 (ML12026A458); NRC SE dated February 8, 2012 (ML120180078).

- SNC Edwin I. Hatch Nuclear Plant, LAR dated January 16, 2014, (ADAMS Accession No. ML14016A202); as supplemented by letter dated May 2, 2014 (ML14122A339); and NRC SE dated December 10, 2014 (ML14279A261).

4.3 No Significant Hazards Consideration

Pursuant to 10 CFR 50.90, Duke Energy Carolinas, LLC (Duke Energy) proposes a license amendment request (LAR) for the Renewed Facility Operating License (FOL) and Technical Specifications (TS) for McGuire (MNS) and Catawba (CNS) Nuclear Stations, Units 1 and 2.

This proposed LAR modifies MNS TS 3.7.10, "Control Room Area Chilled Water Systems," and corresponding CNS TS 3.7.11 by adding a new Action for both trains of Control Room Area Chilled Water Systems (CRACWS) inoperable. The new Action allows a finite time, 24 hours, to restore one train to Operable status and requires periodic verification that Control Room temperature is maintained at or below 90°F degrees. The proposed LAR is modeled after TSTF-477, Rev. 3, "Add Action for Two Inoperable Control Room AC Subsystems."

Duke Energy has concluded that operation of the McGuire and Catawba Nuclear Stations in accordance with the proposed generic changes to the Technical Specifications does not involve a significant hazards consideration. Duke Energy's conclusion is based on its evaluation, in accordance with 10 CFR 50.91(a)(1), of the three standards set forth in 10 CFR 50.92(c) as discussed below:

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

   Response: No.

The proposed change allows 24 hours to restore an inoperable CRACWS train when both trains are inoperable provided Control Room temperature is verified to be within the design limits every 4 hours. The equipment qualification temperature of Control Room equipment is not affected. The CRACWS is not an initiator of any accident previously evaluated. As a result, the probability of any accident previously evaluated is not increased.

The consequences of an accident during the proposed 24 hour Completion Time are no different than the consequences of an accident during the existing 1 hour Completion Time provided in LCO 3.0.3 to prepare for a shutdown. The proposed TS changes do not increase or change the current Control Room temperature limit. As a result, the consequences of any accident previously evaluated are not significantly increased.

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.

No new or different accidents result from utilizing the proposed change. The TS changes do not involve a physical alteration of the plant or a change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements. Should the new Actions not be met, the existing and proposed Actions require a plant shutdown. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions.

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 proposed change provides a limited period of time to restore an inoperable CRACWS train instead of requiring an immediate plant shutdown. A plant shutdown is a transient, which may be avoided by providing a limited time to make repairs. In addition, the Control Room temperature must be maintained less than a limit set to ensure habitability of the Control Room and the operability of the equipment cooled by the CRACWS. The potential to avoid a plant transient, in conjunction with maintaining the Control Room temperature and the low probability of an event occurring during this time period, offset any risk associated with the limited Completion Time.

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

Based on the above, Duke Energy concludes that the proposed change presents no 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 Conclusion

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 approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATIONS

A review has determined that the proposed change 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. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion 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 need be prepared in connection with the proposed change.

6.0 REFERENCES

1) TSTF-477, Revision 3, *Add Action for Two Inoperable Control Room AC Subsystems, dated March 26, 2007.*

2) NRC Letter, *Summary of April 9, 2014, Public Teleconference Regarding Potential Submission of a License Amendment Request to Implement TSTF-477 for Control Room Air Conditioning subsystems,* dated April 21, 2014, ADAMS Accession No.ML14101A243.

3) TSTF-553, Revision 0, *Add Action for Two Inoperable CREATCS Trains, transmitted for NRC review on October 31, 2015.*

4) Duke Energy Letter, Duke Energy Carolinas, LLC (Duke) McGuire Nuclear Station, Units 1 and 2, Docket Number 50-369 and 50-370 *Notice of Enforcement Discretion Request Technical Specification (TS) 3.7.10, Control Room Area Chilled water System, dated January 14, 2010.*

5) Duke Energy Letter, Duke Energy Carolinas, LLC (Duke) McGuire Nuclear Station, Unit 2 50-370 *Notice of Enforcement Discretion Request Technical Specification 3.7.10, Control Room Area Chilled water System (CRACWS), dated October 12, 2005.*

6) Duke Energy Letter, *Duke Energy Carolinas, LLC (Duke Energy) Catawba Nuclear Station, Units 1 and 2, Docket Number 50-413 and 50-414 Notice of Enforcement Discretion (NOED) Request Technical Specification (TS) 3.7.11, "Control Room Area Chilled water System (CRACWS)" TS Limiting condition for Operation (LCO) 3.0.3* dated December 19, 2011.

7) PSEG Letter, *Hope Creek Generating Station, Facility Operating License No. NPF-57 NRC Docket No. 50-354 Application for Technical Specification Change TSF-477, Revision 3, Add Action for Two Inoperable Control Room AC Subsystems to the Technical Specifications Using Consolidated Line Item Improvement Process, dated February 28, 2011.*

8) Southern Nuclear Letter, *Edwin I. Hatch Nuclear Plant Application for Technical Specification Change to Revise Action Statements for Inoperable Control Room Air conditioning Subsystems*, dated January 16, 2014.

ATTACHMENT 2A

MNS MARKED UP TECH SPEC PAGES

3.7 PLANT SYSTEMS

3.7.10 Control Room Area Chilled Water System (CRACWS)

LCO 3.7.10 Two CRACWS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies,
During CORE ALTERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CRACWS train inoperable.	A.1 Restore CRACWS train to OPERABLE status.	30 days
~~B~~C. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4. or B	C ~~B~~.1 Be in MODE 3. AND C ~~B~~.2 Be in MODE 5.	6 hours 36 hours
~~C~~D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS.	D ~~C~~.1 Place OPERABLE CRACWS train in operation. OR D ~~C~~.2.1 Suspend CORE ALTERATIONS. AND D ~~C~~.2.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately Immediately

(continued)

INSERT 1 New Condition B

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~D.~~ E. ~~Two CRACWS trains inoperable~~ in MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS.	~~D.~~ E.1 Suspend CORE ALTERATIONS. AND ~~D.~~ E.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
~~E. Two CRACWS trains inoperable in MODE 1, 2, 3, or 4.~~	~~E.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.10.1 Verify the control room temperature is ≤ 90°F.	In accordance with the Surveillance Frequency Control Program

INSERT

Required Action and associated Completion Time of Condition B not met

INSERT 1 TS 3.7.10 New Condition B

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ------ NOTE ---------- Not applicable when second CRACWS intentionally made inoperable. ---------- Two CRACWS trains inoperable.	B.1 Verify Control room temperature ≤ 90°F.	Once per 4 hours
	AND	
	B.2 Restore one CRACWS train to OPERABLE status.	24 hours

ATTACHMENT 2B

CNS MARKED UP TECH SPEC PAGES

3.7 PLANT SYSTEMS

3.7.11 Control Room Area Chilled Water System (CRACWS)

LCO 3.7.11 Two CRACWS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of recently irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CRACWS train inoperable.	A.1 Restore CRACWS train to OPERABLE status.	30 days
~~B~~C. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4. or B	C ~~B~~.1 Be in MODE 3. AND C ~~B~~.2 Be in MODE 5.	6 hours 36 hours
~~C~~D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of recently irradiated fuel assemblies.	~~C~~D.1 Place OPERABLE CRACWS train in operation. OR ~~C~~D.2 Suspend movement of recently irradiated fuel assemblies.	Immediately Immediately

(continued)

INSERT 1 New Condition B

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~D~~E. ~~Two CRACWS trains inoperable~~ in MODE 5 or 6, or during movement of recently irradiated fuel assemblies.	~~D~~E.1 Suspend movement of recently irradiated fuel assemblies.	Immediately
~~E. Two CRACWS trains inoperable in MODE 1, 2, 3, or 4.~~	~~E.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.11.1 Verify the control room temperature is ≤ 90°F.	In accordance with the Surveillance Frequency Control Program

INSERT

Required Action and associated Completion Time of Condition B not met

INSERT 1 TS 3.7.11 New Condition B

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ------ NOTE ---------- Not applicable when second CRACWS intentionally made inoperable. ---------- Two CRACWS trains inoperable.	B.1 Verify Control room temperature ≤ 90°F.	Once per 4 hours
	AND	
	B.2 Restore one CRACWS train to OPERABLE status.	24 hours

ATTACHMENT 3A

MNS MARKED UP TECH SPEC BASES PAGES

BASES

BACKGROUND

The CRACWS provides temperature control for the control room following isolation of the control room.

The CRACWS consists of two independent and redundant trains that provide cooling of recirculated control room air. Each train consists of cooling coils, instrumentation, and controls to provide for control room temperature control. The CRACWS is a subsystem providing air temperature control for the control room.

The CRACWS is an emergency system, parts of which may also operate during normal unit operations. A single train will provide the required temperature control to maintain the control room at approximately 75°F. The CRACWS operation in maintaining the control room temperature is discussed in the UFSAR, Section 6.4 (Ref. 1).

There are components that are part of the CRACWS but do not affect the CRAVS. These components are associated with the Control Room Area Air Handling units, the Switchgear Air Handling units. LCO 3.7.10 does not apply if a CRAVS component does not directly impact the CRACWS.

APPLICABLE SAFETY ANALYSES

The design basis of the CRACWS is to maintain the control room temperature for 30 days of continuous occupancy.

The CRACWS components are arranged in redundant, safety related trains. During emergency operation, the CRACWS maintains the temperature between 75°F and 90°F. A single active failure of a component of the CRACWS, with a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for control room temperature control. The CRACWS is designed in accordance with Seismic Category I requirements. The CRACWS is capable of removing sensible and latent heat loads from the control room, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment OPERABILITY.

The CRACWS satisfies Criterion 3 of 10 CFR 50.36 (Ref. 2).

BASES

LCO

Two independent and redundant trains of the CRACWS are required to be OPERABLE to ensure that at least one is available, assuming a single failure disabling the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident.

The CRACWS is considered to be OPERABLE when the individual components necessary to maintain the control room temperature are OPERABLE in both trains. These components include the cooling coils and associated temperature control instrumentation. In addition, the CRACWS must be operable to the extent that air circulation can be maintained.

The CRACWS is shared between the two units. The system must be OPERABLE for each unit when that unit is in the MODE of Applicability. Additionally, both normal and emergency power must also be OPERABLE because the system is shared. If a CRACWS component becomes inoperable, or normal or emergency power to a CRACWS component becomes inoperable, then the Required Actions of this LCO must be entered independently for each unit that is in the MODE of applicability of the LCO.

APPLICABILITY

In MODES 1, 2, 3, 4, 5, and 6, and during movement of irradiated fuel assemblies and during CORE ALTERATIONS, the CRACWS must be OPERABLE to ensure that the control room temperature will not exceed equipment operational requirements following isolation of the control room.

ACTIONS

A.1

With one CRACWS train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CRACWS train is adequate to maintain the control room temperature within limits. However, the overall reliability is reduced because a single failure in the OPERABLE CRACWS train could result in loss of CRACWS function. The 30 day Completion Time is based on the low probability of an event requiring control room isolation, the consideration that the remaining train can provide the required protection, and that alternate safety or nonsafety related cooling means are available.

INSERT 2 Bases B.1 and B.2 (new paragraph)

INSERT 2 Bases B.1 and B.2 (new paragraph)

B.1 and B.2

If both CRACWS trains are inoperable, the CRACWS may not be capable of performing its intended function. Therefore, the control room temperature is required to be monitored to ensure that temperature is being maintained low enough that equipment in the control room is not adversely affected and remains habitable. Mitigating actions, such as opening cabinet doors, use of fans, or opening control room doors or ventilation paths, may be used to maintain control room temperature. With the control room temperature being maintained within the temperature limit, 24 hours is allowed to restore a CRACWS train to OPERABLE status. This Completion Time is reasonable considering that the control room temperature is being maintained within limits and the low probability of an event occurring requiring control room isolation.

The condition is modified by a Note stating it is not applicable when the second CRACWS train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one CRACWS train is inoperable for any reason and a second CRACWS train is found to be inoperable, or if two CRACWS trains are found to be inoperable at the same time.

BASES

ACTIONS (continued)

associated

train(s)

C C
~~B~~.1 and ~~B~~.2

In MODE 1, 2, 3, or 4, if the inoperable CRACWS train cannot be restored to OPERABLE status within the ~~required~~ Completion Time, the unit must be placed in a MODE that minimizes the risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D D D
~~C~~.1, ~~C~~.2.1, and ~~C~~.2.2

In MODE 5 or 6, or during movement of irradiated fuel, or during CORE ALTERATIONS, if the inoperable CRACWS train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CRACWS train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that active failures will be readily detected.

An alternative to Required Action D ~~C~~.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

if Required Actions B.1 or B.2 cannot be met within the required Completion Times

E E
~~D~~.1 and ~~D~~.2

In MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS, ~~with two CRACWS trains inoperable~~, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

~~E.1~~

~~If both CRACWS trains are inoperable in MODE 1, 2, 3, or 4, the control room CRACWS may not be capable of performing its intended function. Therefore, LCO 3.0.3 must be entered immediately.~~

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1

This SR verifies that the heat removal capability of the system is sufficient to maintain the temperature in the control room at or below 90°F. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 6.4.
2. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).

ATTACHMENT 3B

CNS MARKED UP TECH SPEC BASES PAGES

B 3.7 PLANT SYSTEMS

B 3.7.11 Control Room Area Chilled Water System (CRACWS)

BASES

BACKGROUND

The CRACWS provides temperature control for the control room and the control room area.

The CRACWS consists of two independent and redundant trains that provide cooling to the control room and control room area. Each train consists of a chiller package, chilled water pump, and air handling units with cooling coils. Chilled water is passed through the cooling coils of the air handling unit to cool the air. Electric duct heaters are then used to control the supply air temperature.

The CRACWS provides both normal and emergency cooling to the control room and control room area. A single train will provide the required temperature control to maintain the control room approximately 74°F. The CRACWS operation in maintaining the control room temperature is discussed in the UFSAR, Section 9.4 (Ref. 1).

APPLICABLE SAFETY ANALYSES

The design basis of the CRACWS is to maintain the control room temperature for 30 days of continuous occupancy.

The CRACWS components are arranged in redundant, safety related trains. During emergency operation, the CRACWS maintains the temperature between 72°F and 85°F. A single active failure of a component of the CRACWS, with a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for control room temperature control. The CRACWS is designed in accordance with Seismic Category I requirements. The CRACWS is capable of removing sensible and latent heat loads from the control room, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment OPERABILITY.

The CRACWS satisfies Criterion 3 of 10 CFR 50.36 (Ref. 2).

BASES

LCO

Two independent and redundant trains of the CRACWS are required to be OPERABLE to ensure that at least one is available, assuming a single failure disabling the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident.

The CRACWS is considered to be OPERABLE when the individual components necessary to maintain the control room temperature are OPERABLE in both trains. These components include a chiller package, chilled water pump, and air handling unit. In addition, the CRACWS must be OPERABLE to the extent that air circulation can be maintained.

The CRACWS is shared between the two units. The system must be OPERABLE for each unit when that unit is in the MODE of Applicability. Additionally, both normal and emergency power must also be OPERABLE because the system is shared. A shutdown unit supplying its associated emergency power source (1EMXG/2EMXH) cannot be credited for OPERABILITY of components supporting the operating unit. If a CRACWS component becomes inoperable, or normal or emergency power to a CRACWS component becomes inoperable, then the Required Actions of this LCO must be entered independently for each unit that is in the MODE of applicability of the LCO.

APPLICABILITY

In MODES 1, 2, 3, 4, 5, and 6, and during movement of recently irradiated fuel assemblies, the CRACWS must be OPERABLE to ensure that the control room temperature will not exceed equipment operational requirements following a design basis accident. The CRACWS is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 72 hours) due to radioactive decay.

ACTIONS

A.1

With one CRACWS train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CRACWS train is adequate to maintain the control room temperature within limits. However, the overall reliability is reduced because a single failure in the OPERABLE CRACWS train could result in loss of CRACWS function. The 30 day Completion Time is based on the low probability of an event, the consideration that the remaining train can provide the required protection, and that alternate safety or nonsafety related cooling means are available.

INSERT 2 B.1 and B.2
(new paragraph)

INSERT 2 Bases B.1 and B.2 (new paragraph)

B.1 and B.2

If both CRACWS trains are inoperable, the CRACWS may not be capable of performing its intended function. Therefore, the control room temperature is required to be monitored to ensure that temperature is being maintained low enough that equipment in the control room is not adversely affected and remains habitable. Mitigating actions, such as opening cabinet doors, use of fans, or opening control room doors or ventilation paths, may be used to maintain control room temperature. With the control room temperature being maintained within the temperature limit, 24 hours is allowed to restore a CRACWS train to OPERABLE status. This Completion Time is reasonable considering that the control room temperature is being maintained within limits and the low probability of an event occurring requiring control room isolation.

The condition is modified by a Note stating it is not applicable when the second CRACWS train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one CRACWS train is inoperable for any reason and a second CRACWS train is found to be inoperable, or if two CRACWS trains are found to be inoperable at the same time.

BASES

ACTIONS (continued)

associated

train(s)

~~B~~C.1 and ~~B~~C.2

In MODE 1, 2, 3, or 4, if the inoperable CRACWS ~~train~~ cannot be restored to OPERABLE status within the ~~required~~ Completion Time, the unit must be placed in a MODE that minimizes the risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

~~C~~D.1 and ~~C~~D.2

In MODE 5 or 6, or during movement of recently irradiated fuel, if the inoperable CRACWS train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CRACWS train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, and that active failures will be readily detected.

An alternative to Required Action ~~C~~D.1 is to immediately suspend activities that present a potential for releasing radioactivity. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

if Required Actions B.1 or B.2 cannot be met within the required Completion Times

~~D~~E.1

In MODE 5 or 6, or during movement of recently irradiated fuel assemblies, ~~with two CRACWS trains inoperable~~, action must be taken immediately to suspend activities that could result in a release of radioactivity. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

~~E.1~~

~~If both CRACWS trains are inoperable in MODE 1, 2, 3, or 4, the control room CRACWS may not be capable of performing its intended function. Therefore, LCO 3.0.3 must be entered immediately.~~

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

This SR verifies that the heat removal capability of the system is sufficient to maintain the temperature in the control room at or below 90°F. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 9.4.

2. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).

3. 10 CFR 50.67, Accident source term.

4. Regulatory Guide 1.183, Revision 0.