



Nebraska Public Power District

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50.90

NLS2020007

April 1, 2020

Attention: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Subject: Application to Revise Technical Specifications to Adopt TSTF-566, "Revise Actions for Inoperable RHR Shutdown Cooling Subsystems" using the Consolidated Line Item Improvement Process
Cooper Nuclear Station, Docket No. 50-298, License No. DPR-46

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Nebraska Public Power District (NPPD) is submitting a request for an amendment to the Technical Specifications (TS) for Cooper Nuclear Station (CNS).

NPPD requests adoption of TSTF-566, "Revise Actions for Inoperable RHR Shutdown Cooling Subsystems," which is an approved change to the Improved Standard Technical Specifications, into the CNS TS. The proposed amendment revises the TS actions applicable when a residual heat removal shutdown cooling subsystem is inoperable.

Attachment 1 provides a description and assessment of the proposed changes. Attachment 2 provides the existing TS pages marked to show the proposed changes. Attachment 3 provides revised (clean) TS pages. Attachment 4 provides existing TS Bases pages marked to show the proposed changes for information only.

Approval of the proposed amendment is requested by April 1, 2021. Once approved, the amendment shall be implemented within 60 days.

There are no regulatory commitments made in this submittal.

The proposed TS changes have been reviewed by the necessary safety review committees (Station Operations Review Committee and Safety Review and Audit Board). In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," a copy of this application, with attachments, is being provided to the designated State of Nebraska Official.

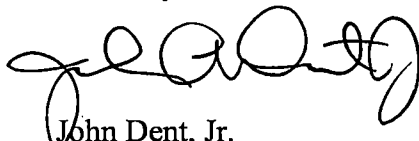
If you should have any questions regarding this submittal, please contact Linda Dewhirst, Regulatory Affairs and Compliance Manager, at (402) 825-5416.

ADD
NR

I declare under penalty of perjury that the foregoing is true and correct.

Executed On: 4/1/2020
Date

Sincerely,



John Dent, Jr.
Vice President and
Chief Nuclear Officer

/dv

- Attachments:
1. Description and Assessment
 2. Proposed Technical Specifications Changes (Mark-up)
 3. Revised Technical Specifications Pages
 4. Proposed Technical Specifications Bases Changes (Mark-up) - Information Only

cc: Regional Administrator w/ attachments
USNRC - Region IV

Cooper Project Manager w/ attachments
USNRC - NRR Plant Licensing Branch IV

Senior Resident Inspector w/ attachments
USNRC - CNS

Nebraska Health and Human Services w/ attachments
Department of Regulation and Licensure

NPG Distribution w/o attachments

CNS Records w/ attachments

Attachment 1

Description and Assessment

Cooper Nuclear Station, Docket No. 50-298, License No. DPR-46

1.0 Description

2.0 Assessment

2.1 Applicability of Safety Evaluation

2.2 Variations

3.0 Regulatory Analysis

3.1 No Significant Hazards Consideration Analysis

3.2 Conclusion

4.0 Environmental Consideration

1.0 DESCRIPTION

Nebraska Public Power District (NPPD) requests adoption of TSTF-566, "Revise Actions for Inoperable RHR Shutdown Cooling Subsystems," which is an approved change to the Improved Standard Technical Specifications, into the Cooper Nuclear Station (CNS) Technical Specifications (TS). The proposed amendment revises the TS actions applicable when a residual heat removal (RHR) shutdown cooling subsystem is inoperable.

2.0 ASSESSMENT

2.1 Applicability of Safety Evaluation

NPPD has reviewed the safety evaluation for TSTF-566 provided to the Technical Specifications Task Force (TSTF) in a letter dated February 21, 2019. This review included a review of the Nuclear Regulatory Commission (NRC) staff's evaluation, as well as the information provided in TSTF-566. NPPD has concluded that the justifications presented in TSTF-566 and the safety evaluation prepared by the NRC staff are applicable to CNS and justify this amendment for the incorporation of the changes to the CNS TS.

2.2 Variations

NPPD is proposing the following variations from the TS changes described in TSTF-566 or the applicable parts of the NRC staff's safety evaluation.

The CNS TS utilize different numbering than the Standard Technical Specifications on which TSTF-566 was based. Specifically:

- Specification 3.4.8, "RHR Shutdown Cooling System – Hot Shutdown" is Specification 3.4.7 in the CNS TS
- Specification 3.4.9, "RHR Shutdown Cooling System – Cold Shutdown" is Specification 3.4.8 in the CNS TS

These differences are administrative and do not affect the applicability of TSTF-566 to the CNS TS.

The traveler discusses the applicable regulatory requirement and guidance, including the 10 CFR 50, Appendix A, General Design Criteria (GDC). CNS was not licensed to the 10 CFR 50, Appendix A, GDC. The CNS equivalent of the GDC is located in Appendix F of the CNS Updated Safety Analysis Report. Specifically, the traveler refers to 10 CFR 50, Appendix A, Criterion 34. CNS does not have an equivalent draft GDC criterion. This difference does not alter the conclusion that the proposed change is applicable to CNS.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Analysis

Nebraska Public Power District (NPPD) requests adoption of TSTF-566, "Revise Actions for Inoperable RHR Shutdown Cooling Subsystems," which is an approved change to the Improved Standard Technical Specifications, into the Cooper Nuclear Station Technical Specifications (TS).

The proposed amendment revises the TS actions applicable when a residual heat removal (RHR) shutdown cooling subsystem is inoperable.

NPPD has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No

The proposed change revises the actions to be taken when a RHR shutdown cooling subsystem is inoperable. The RHR System in the shutdown cooling mode performs the important safety function of removing decay heat from the reactor coolant system during shutdown. The RHR System in the shutdown cooling mode is not an initiator of any accident previously evaluated or assumed to mitigate any accident previously evaluated. The design and function of the RHR System are not affected by the proposed change.

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

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

Response: No

The proposed change revises the actions to be taken when a RHR shutdown cooling subsystem is inoperable. The proposed change does not affect the design function or operation of the RHR shutdown cooling subsystems. No new equipment is being installed as a result of the proposed change. The proposed change only affects the actions taken when an RHR shutdown cooling subsystem is inoperable, so no new failure mechanisms are created.

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 amendment involve a significant reduction in a margin of safety?

Response: No

The proposed change revises the actions to be taken when a RHR shutdown cooling subsystem is inoperable. The proposed change does not change any specific values or controlling parameters that define margin in the design or licensing basis. No safety limits are affected by the proposed change. The RHR System in the shutdown cooling mode removes decay heat from the reactor coolant system during shutdown. The proposed change does not affect any design or safety limits associated with the RHR System.

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

Based on the above, NPPD 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.

3.2 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 issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

4. ENVIRONMENTAL CONSIDERATION

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.

Attachment 2

Proposed Technical Specifications Changes (Mark-up)

Cooper Nuclear Station, Docket No. 50-298, License No. DPR-46

Revised Pages

3.4-15

3.4-16

3.4-18

3.4-19

RHR Shutdown Cooling System – Hot Shutdown
3.4.7

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown

LCO 3.4.7 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

~~NOTES~~

1. Both RHR shutdown cooling subsystems and recirculation pumps may be removed from operation for up to 2 hours per 8 hour period.
2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.


APPLICABILITY: MODE 3, with reactor steam dome pressure less than the shutdown cooling permissive pressure.

ACTIONS

~~NOTE~~

Separate Condition entry is allowed for each RHR shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Initiate action to restore RHR shutdown cooling subsystem(s) to OPERABLE status. AND	Immediately (continued)

(continued) 

RHR Shutdown Cooling System – Hot Shutdown
3.4.7

ACTIONS		
CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. (continued)</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>B. Required Action and associated Completion Time of Condition A not met.</p> </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 10px;"> <p>B.1 Initiate action to restore RHR shutdown cooling subsystem(s) to OPERABLE status.</p> </div>	<p>A.2</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-left: 20px;">A.1</div> <p>Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.</p> <p>AND</p> <p>A.3 Be in MODE 4.</p>	<p>1 hour</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 100px;"> <p>AND</p> <p>Once per 24 hours thereafter</p> </div> <p>24 hours</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-left: 100px;">Immediately</div>
<p>B No RHR shutdown cooling subsystem in operation.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-left: 10px;">C.</div> <p><u>AND</u></p> <p>No recirculation pump in operation.</p>	<p>B.1</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-left: 20px;">C.1</div> <p>Initiate action to restore one RHR shutdown cooling subsystem or one recirculation pump to operation.</p> <p><u>AND</u></p> <p>B.2</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-left: 100px;">C.2</div> <p>Verify reactor coolant circulation by an alternate method.</p> <p><u>AND</u></p> <p>B.3</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-left: 100px;">C.3</div> <p>Monitor reactor coolant temperature and pressure.</p>	<p>Immediately</p> <p>1 hour from discovery of no reactor coolant circulation</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>Once per hour</p>

RHR Shutdown Cooling System – Cold Shutdown
3.4.8

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 Residual Heat Removal (RHR) Shutdown Cooling System - Cold Shutdown

LCO 3.4.8 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

-----NOTES-----

1. Both RHR shutdown cooling subsystems and recirculation pumps may be removed from operation for up to 2 hours per 8 hour period.
 2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.
-

APPLICABILITY: MODE 4.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour <u>AND</u> Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.		(continued)
	B.1 Initiate action to restore RHR shutdown cooling subsystem(s) to OPERABLE status.	Immediately

RHR Shutdown Cooling System – Cold Shutdown
3.4.8

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<div style="display: flex; align-items: flex-start;"> <div style="border: 1px solid black; padding: 2px; margin-right: 10px;">C.</div> <div> <p>B. No RHR shutdown cooling subsystem in operation.</p> <p><u>AND</u></p> <p>No recirculation pump in operation.</p> </div> </div>	<div style="display: flex; flex-direction: column; align-items: flex-start;"> <div style="margin-bottom: 20px;"> <p>B.1</p> <div style="border: 1px solid black; padding: 2px; margin-top: -10px;">C.1</div> <p>Verify reactor coolant circulating by an alternate method.</p> </div> <div> <p><u>AND</u></p> <p>B.2</p> <div style="border: 1px solid black; padding: 2px; margin-top: -10px;">C.2</div> <p>Monitor reactor coolant temperature.</p> </div> </div>	<p>1 hour from discovery of no reactor coolant circulation</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>Once per hour</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.8.1 Verify one RHR shutdown cooling subsystem or recirculation pump is operating.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

Attachment 3

Revised Technical Specifications Pages

Cooper Nuclear Station, Docket No. 50-298, License No. DPR-46

Revised Pages

3.4-15

3.4-16

3.4-18

3.4-19

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown

LCO 3.4.7 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

-----NOTES-----

1. Both RHR shutdown cooling subsystems and recirculation pumps may be removed from operation for up to 2 hours per 8 hour period.
 2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.
-

APPLICABILITY: MODE 3, with reactor steam dome pressure less than the shutdown cooling permissive pressure.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each RHR shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour <u>AND</u> Once per 24 hours thereafter

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to restore RHR shutdown cooling subsystem(s) to OPERABLE status.	Immediately
C. No RHR shutdown cooling subsystem in operation. <u>AND</u> No recirculation pump in operation.	C.1 Initiate action to restore one RHR shutdown cooling subsystem or one recirculation pump to operation. <u>AND</u> C.2 Verify reactor coolant circulation by an alternate method. <u>AND</u> C.3 Monitor reactor coolant temperature and pressure.	Immediately 1 hour from discovery of no reactor coolant circulation <u>AND</u> Once per 12 hours thereafter Once per hour

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 Residual Heat Removal (RHR) Shutdown Cooling System - Cold Shutdown

LCO 3.4.8 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

NOTES

1. Both RHR shutdown cooling subsystems and recirculation pumps may be removed from operation for up to 2 hours per 8 hour period.
2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.

APPLICABILITY: MODE 4.

ACTIONS

NOTE

Separate Condition entry is allowed for each shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour <u>AND</u> Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to restore RHR shutdown cooling subsystem(s) to OPERABLE status.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. No RHR shutdown cooling subsystem in operation. <u>AND</u> No recirculation pump in operation.	C.1 Verify reactor coolant circulating by an alternate method.	1 hour from discovery of no reactor coolant circulation
	<u>AND</u>	<u>AND</u>
	C.2 Monitor reactor coolant temperature.	Once per 12 hours thereafter
		Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.8.1 Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	In accordance with the Surveillance Frequency Control Program

Attachment 4

**Proposed Technical Specifications Bases Changes (Mark-up) -
Information Only**

Cooper Nuclear Station, Docket No. 50-298, License No. DPR-46

Revised Pages

B 3.4-36

B 3.4-37

B 3.4-42

B 3.9-24

B 3.9-29

Note: Attachment includes page of Bases Inserts

Bases Inserts

Insert 1 (B 3.4.7 Required Action A.1)

Furthermore, verification of the functional availability of these alternate method(s) must be reconfirmed every 24 hours thereafter. This will provide assurance of continued heat removal capability.

Insert 2 (B 3.4.7 and B 3.4.8 new Required Action B.1)

B.1

If the required alternate method(s) of decay heat removal cannot be verified within one hour, immediate action must be taken to restore the inoperable RHR shutdown cooling subsystem(s) to operable status. The Required Action will restore redundant decay heat removal paths. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal.

Insert 3 (B 3.9.7 and B 3.9.8 Required Action A.1)

The required cooling capacity of the alternate method should be sufficient to maintain or reduce temperature. Decay heat removal by ambient losses can be considered as, or contributing to, the alternate method capability. Alternate methods that can be used include (but are not limited to) the Spent Fuel Pool Cooling System, the Reactor Water Cleanup System, or an inoperable but functional RHR shutdown cooling subsystem.

BASES

ACTIONS

A Note has been provided to modify the ACTIONS related to RHR shutdown cooling subsystems. Section 1.3, Completion Times, specifies once a Condition has been entered, subsequent divisions, subsystems, components or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable shutdown cooling subsystems provide appropriate compensatory measures for separate inoperable shutdown cooling subsystems. As such, a Note has been provided that allows separate Condition entry for each inoperable RHR shutdown cooling subsystem.

A.1, A.2, and A.3

With one required RHR shutdown cooling subsystem inoperable for decay heat removal, except as permitted by LCO Note 2, the inoperable subsystem must be restored to OPERABLE status without delay. In this condition, the remaining OPERABLE subsystem can provide the necessary decay heat removal. The overall reliability is reduced, however, because a single failure in the OPERABLE subsystem could result in reduced RHR shutdown cooling capability. Therefore, an alternate method of decay heat removal must be provided.

With both RHR shutdown cooling subsystems inoperable, an alternate method of decay heat removal must be provided in addition to that provided for the initial RHR shutdown cooling subsystem inoperability. This re-establishes backup decay heat removal capabilities, similar to the requirements of the LCO. The 1 hour Completion Time is based on the decay heat removal function and the probability of a loss of the available decay heat removal capabilities. ← [INSERT 1]

sufficient to

The required cooling capacity of the alternate method should be ensured by verifying (by calculation or demonstration) its capability to maintain or reduce temperature. Decay heat removal by ambient losses can be considered as, or contributing to, the alternate method capability. Alternate methods that can be used include (but are not limited to) the Condensate/Main Steam Systems, the Reactor Water Cleanup System, and a combination of an ECCS pump and a safety/relief valve. →

, or an inoperable but functional RHR shutdown cooling system.

However, due to the potentially reduced reliability of the alternate methods of decay heat removal, it is also required to reduce the reactor coolant temperature to the point where MODE 4 is entered.

[INSERT 2]

BASES

ACTIONS (continued)

~~B.1, B.2, and B.3~~

C.1, C.2, and C.3



With no RHR shutdown cooling subsystem and no recirculation pump in operation, except as permitted by LCO Note 1, reactor coolant circulation by the RHR shutdown cooling subsystem or recirculation pump must be restored without delay.

Until RHR or recirculation pump operation is re-established, an alternate method of reactor coolant circulation must be placed into service. This will provide the necessary circulation for monitoring coolant temperature. The 1 hour Completion Time is based on the coolant circulation function and is modified such that the 1 hour is applicable separately for each occurrence involving a loss of coolant circulation. Furthermore, verification of the functioning of the alternate method must be reconfirmed every 12 hours thereafter. This will provide assurance of continued temperature monitoring capability.

During the period when the reactor coolant is being circulated by an alternate method (other than by the required RHR shutdown cooling subsystem or recirculation pump), the reactor coolant temperature and pressure must be periodically monitored to ensure proper function of the alternate method. The once per hour Completion Time is deemed appropriate.

SURVEILLANCE REQUIREMENTS

SR 3.4.7.1

This Surveillance verifies that one RHR shutdown cooling subsystem or recirculation pump is in operation and circulating reactor coolant. The required flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

This Surveillance is modified by a Note allowing sufficient time to align the RHR System for shutdown cooling operation after clearing the pressure interlock that isolates the system, or for placing a recirculation pump in operation. The Note takes exception to the requirements of the Surveillance being met (i.e., forced coolant circulation is not required for this initial 2 hour period), which also allows entry into the Applicability of this Specification in accordance with SR 3.0.4 since the Surveillance will not be "not met" at the time of entry into the Applicability.

BASES

ACTIONS

A.1 (continued)

Therefore, an alternate method of decay heat removal must be provided. With both RHR shutdown cooling subsystems inoperable, an alternate method of decay heat removal must be provided in addition to that provided for the initial RHR shutdown cooling subsystem inoperability. This re-establishes backup decay heat removal capabilities, similar to the requirements of the LCO. The 1 hour Completion Time is based on the decay heat removal function and the probability of a loss of the available decay heat removal capabilities. Furthermore, verification of the functional availability of these alternate method(s) must be reconfirmed every 24 hours thereafter. This will provide assurance of continued heat removal capability.

sufficient

The required cooling capacity of the alternate method should be ~~ensured by verifying (by calculation or demonstration)~~ its capability to maintain or reduce temperature. Decay heat removal by ambient losses can be considered as, or contributing to, the alternate method capability. Alternate methods that can be used include (but are not limited to) the Reactor Water Cleanup System and a combination of an ECCS pump and a safety/relief valve.

[INSERT 2]

, or an inoperable but functional RHR shutdown cooling subsystem

~~B.1 and B.2~~

C.1 and C.2

With no RHR shutdown cooling subsystem and no recirculation pump in operation, except as permitted by LCO Note 1, and until RHR or recirculation pump operation is re-established, an alternate method of reactor coolant circulation must be placed into service. This will provide the necessary circulation for monitoring coolant temperature. The 1 hour Completion Time is based on the coolant circulation function and is modified such that the 1 hour is applicable separately for each occurrence involving a loss of coolant circulation. Furthermore, verification of the functioning of the alternate method must be reconfirmed every 12 hours thereafter. This will provide assurance of continued temperature monitoring capability.

During the period when the reactor coolant is being circulated by an alternate method (other than by the required RHR shutdown cooling subsystem or recirculation pump), the reactor coolant temperature and pressure must be

(continued)

BASES

ACTIONS

A.1 (continued)

heat from the reactor core. However, the overall reliability is reduced because loss of water level could result in reduced decay heat removal capability. The 1 hour Completion Time is based on decay heat removal function and the probability of a loss of the available decay heat removal capabilities. Furthermore, verification of the functional availability of the alternate method must be reconfirmed every 24 hours thereafter. This will ensure continued heat removal capability.

Alternate decay heat removal methods are available to the operators for review and preplanning in the unit Operating Procedures. ~~The required cooling capacity of the alternate method should be ensured by verifying (by calculation or demonstration) its capability to maintain or reduce temperature. For example, this may include the use of the Spent Fuel Pool Cooling System and the Reactor Water Cleanup System, operating with the regenerative heat exchanger bypassed or in combination with the Control Rod Drive System or Condensate System.~~ The method used to remove the decay heat should be the most prudent choice based on station conditions.

[INSERT 3]



B.1, B.2, B.3, and B.4

If no RHR shutdown cooling subsystem is OPERABLE and an alternate method of decay heat removal is not available in accordance with Required Action A.1, actions shall be taken immediately to suspend operations involving an increase in reactor decay heat load by suspending loading of irradiated fuel assemblies into the RPV.

Additional actions are required to minimize any potential fission product release to the environment. This includes ensuring secondary containment is OPERABLE; one standby gas treatment subsystem is OPERABLE; and secondary containment isolation capability is available in each associated penetration flow path not isolated that is assumed to be isolated to mitigate radioactive releases (i.e., one secondary containment isolation valve and associated instrumentation are OPERABLE or other acceptable administrative controls to assure isolation capability. These administrative controls consist of stationing an

(continued)

BASES

ACTIONS

A.1 (continued)

LCO. The 1 hour Completion Time is based on the decay heat removal function and the probability of a loss of the available decay heat removal capabilities. Furthermore, verification of the functional availability of this alternate method must be reconfirmed every 24 hours thereafter. This will ensure continued heat removal capability.

Alternate decay heat removal methods are available to the operators for review and preplanning in the unit Operating Procedures. ~~The required cooling capacity of the alternate method should be ensured by verifying (by calculation or demonstration) its capacity to maintain or reduce temperature. For example, this may include the use of the Spent Fuel Pool Cooling System and the Reactor Water Cleanup System, operating with the regenerative heat exchanger bypassed or in combination with the Control Rod Drive System or Condensate System. The method used to remove decay heat should be the most prudent choice based on station conditions.~~

[INSERT 3]



B.1, B.2, and B.3

With the required decay heat removal subsystem(s) inoperable and the required alternate method(s) of decay heat removal not available in accordance with Required Action A.1, additional actions are required to minimize any potential fission product release to the environment. This includes ensuring secondary containment is OPERABLE; one standby gas treatment subsystem is OPERABLE; and secondary containment isolation capability is available in each associated penetration flow path not isolated that is assumed to be isolated to mitigate radioactive releases (i.e., one secondary containment isolation valve and associated instrumentation are OPERABLE or other acceptable administrative controls to assure isolation capability. These administrative controls consist of stationing an operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for secondary containment is indicated.) This may be performed as an administrative check, by examining logs or

(continued)