VOLUME 14

CNP UNITS 1 AND 2
IMPROVED TECHNICAL SPECIFICATIONS CONVERSION

ITS SECTION 3.9
REFUELING OPERATIONS

Revision 0

LIST OF ATTACHMENTS

1. ITS 3.9.1
2. ITS 3.9.2
3. ITS 3.9.3
4. ITS 3.9.4
5. ITS 3.9.5
6. ITS 3.9.6
7. Relocated/Deleted Current Technical Specifications (CTS)
8. Improved Standard Technical Specifications (ISTS) not adopted in the CNP ITS

ATTACHMENT 1

ITS 3.9.1, Boron Concentration

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.9 REFUELING OPERATIONS

BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

and the refueling cavity

A.2

LCO 3.9.1

3.9.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met:

a. Either a K_{eff} of 0.95 or less, which includes a 1% $\Delta k/k$ conservative allowance for uncertainties, or

b. A boron concentration of greater than or equal to 2400 ppm, which includes a 50 ppm conservative allowance for uncertainties.

LA.1

within the limit specified in the COLR

APPLICABILITY: MODE 6

Add proposed Applicability Note

L.1

ACTION:

ACTION A

a. With the requirements of the above specification not satisfied, 1) immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes except addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2, and 2) initiate and continue boration at greater than or equal to 34 gpm of 6,550 ppm boric acid solution or its equivalent until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 2400 ppm, whichever is the more restrictive.

M.1

L.2

b. The provisions of Specification 3.0.3 are not applicable.

A.3

SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

a. Removing or unbolting the reactor vessel head, and

b. Withdrawal of any full length control rod in excess of 3 feet from its fully inserted position.

L.3

SR 3.9.1.1
SR 3.9.1.2

4.9.1.2 The boron concentration of the reactor coolant system and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

LA.2

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ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.9 REFUELING OPERATIONS

BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

and the refueling cavity

A.2

LCO 3.9.1

3.9.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met:

a. Either a K_{eff} of 0.95 or less, which includes a 1% $\Delta k/k$ conservative allowance for uncertainties, or

b. A boron concentration of greater than or equal to 2400 ppm, which includes a 50 ppm conservative allowance for uncertainties.

LA.1

within the limit specified in the COLR

APPLICABILITY: MODE 6

Add proposed Applicability Note

L.1

ACTION:

ACTION A

a. With the requirements of the above specification not satisfied, 1) immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes except addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2, and 2) initiate and continue boration at greater than or equal to 34 gpm of 6,550 ppm boric acid solution or its equivalent until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 2400 ppm, whichever is the more restrictive.

M.1

L.2

b. The provisions of Specification 3.0.3 are not applicable.

A.3

SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

a. Removing or unbolting the reactor vessel head, and

b. Withdrawal of any full length control rod in excess of 3 feet from its fully inserted position within the reactor pressure vessel.

L.3

SR 3.9.1.1
SR 3.9.1.2

4.9.1.2 The boron concentration of the reactor coolant system and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

LA.2

DISCUSSION OF CHANGES
ITS 3.9.1, BORON CONCENTRATION

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.9.1 provides requirements on the boron concentration of all filled portions of the Reactor Coolant System and the refueling canal. ITS 3.9.1 provides requirements on the boron concentration of the Reactor Coolant System, the refueling canal, and the refueling cavity. This changes the CTS by explicitly including the refueling cavity in the volumes required to have boron concentration maintained.

This change is acceptable because the technical requirements have not changed. The refueling cavity is considered to be governed by the CTS requirements because the refueling cavity is typically connected to the RCS, the refueling canal, or both. This change is designated as administrative because the technical requirements of the specifications have not changed.

A.3 CTS 3.9.1 Action b contains the statement, "The provisions of Specification 3.0.3 are not applicable." ITS 3.9.1 does not contain an equivalent statement. This changes the CTS by deleting the Specification 3.0.3 exception.

This change is acceptable because the technical requirements have not changed. ITS LCO 3.0.3 is not applicable in MODE 6. Therefore, the CTS LCO 3.0.3 exception is not needed. This change is designated as administrative because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS 3.9.1 Action a requires the immediate suspension of positive reactivity changes "except addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2" (i.e., 2400 ppm). ITS 3.9.1 Required Action A.2 requires positive reactivity additions to be suspended, but does not provide any allowance for positive reactivity changes due to the addition of water from the RWST to continue. This changes the CTS by removing the allowance to allow a positive reactivity change from the addition of water from the RWST, provided the boron concentration of the RWST is greater than 2400 ppm.

The purpose of CTS 3.9.1 Action a is to provide assurance that an inadvertent criticality will not result when the boron concentration is not within limits in MODE 6. The CTS 3.9.1 Action requires the suspension of all operations involving CORE ALTERATIONS or positive reactivity changes and initiation of activities to restore boron concentration to within its limit. However, allowing a

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positive reactivity addition conflicts with the requirement to restore boron concentration to its limit. Therefore, this exception is deleted. This change is acceptable because the ITS requires actions that provide assurance that an inadvertent criticality will not result while boron concentration is not within limits in MODE 6, and requires initiation of activities to restore boron concentration to within its limit. This change is designated as more restrictive because it provides more restrictive corrective actions in the ITS than in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 5 – Removal of Cycle-Specific Parameter Limits from the Technical Specifications to the Core Operating Limits Report)* CTS 3.9.1 states that the boron concentration in MODE 6 shall be the more restrictive reactivity condition of a k_{eff} of 0.95 or less or a boron concentration of $\geq$ 2400 ppm. ITS LCO 3.9.1 states that the boron concentration shall be within the limit specified in the COLR. This changes the CTS by relocating the MODE 6 boron concentration limit, which must be confirmed on a cycle-specific basis, to the CORE OPERATING LIMITS REPORT (COLR).

The removal of these cycle-specific parameter limits from the Technical Specifications and their relocation into the COLR is acceptable because these limits are developed or utilized under NRC-approved methodologies. The NRC documented in Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits From Technical Specifications," that this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains requirements and Surveillances that verify that the cycle-specific parameter limits are being met. ITS 3.9.1 continues to require that boron concentration limit is met. ITS SR 3.9.1.1 requires periodic verification that boron concentration is within the limits provided in the COLR. The method of determining or utilizing the boron concentration limit has not changed. Also, this change is acceptable because the removed information will be adequately controlled in the COLR under the requirements provided in ITS 5.6.5, "Core Operating Limits Report." ITS 5.6.5 ensures that the applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems limits, and nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analyses are met. This change is designated as a less restrictive removal of detail change because information relating to cycle-specific parameter limits is being removed from the Technical Specifications.

LA.2 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.9.1.2 requires that the boron concentration of the Reactor Coolant System and the refueling canal be determined "by chemical analysis" at least once per 72 hours. ITS SR 3.9.1.1 and SR 3.9.1.2 require verification that boron concentration is within the limit specified in the COLR. ITS

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DISCUSSION OF CHANGES
ITS 3.9.1, BORON CONCENTRATION

SR 3.9.1.1 and SR 3.9.1.2 do not specify that the boron concentration be determined by chemical analysis. This changes the CTS by moving details of how the boron concentration is determined from the CTS to the Bases.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement that the boron concentration be verified within its limit. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 2 – Relaxation of Applicability)* CTS 3.9.1 provides limits on the boron concentration of all filled portions of the Reactor Coolant System and the refueling canal when in MODE 6. ITS 3.9.1 modifies this requirement with a Note which states "Only applicable to the refueling canal and refueling cavity when connected to the RCS." This changes the CTS by eliminating the applicability of the boron concentration limits on the refueling canal and refueling cavity when those volumes are not connected to the RCS. In addition, ITS SR 3.9.1.2 requires a verification that the boron is within the limit specified in the COLR once within 72 hours prior to connecting the refueling canal and refueling cavity to the RCS.

The purpose of CTS 3.9.1 is to ensure the boron concentration of the water surrounding the reactor fuel is sufficient to maintain the required SHUTDOWN MARGIN. This change is acceptable because the requirements continue to ensure that process variables are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. If the refueling canal and refueling cavity are not connected to the RCS (such as when the reactor vessel head is on the reactor vessel), the boron concentration of those volumes cannot affect the SHUTDOWN MARGIN. In addition, prior to connecting the refueling canal and refueling cavity to the RCS, a boron concentration verification will be performed to ensure the newly connected portions cannot decrease the boron concentration below the limit. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L.2 *(Category 4 – Relaxation of Required Action)* CTS 3.9.1 Action a states that when the boron concentration requirement is not met, initiate and continue boration at $\geq$ 34 gpm of 6,550 ppm boric acid solution or its equivalent until k_{eff} is reduced to $\leq$ 0.95 or the boron concentration is restored to $\geq$ 2400 ppm, whichever is the more restrictive. ITS 3.9.1 Required Action A.3 requires initiation of action to restore boron concentration to within limit. This changes the

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DISCUSSION OF CHANGES
ITS 3.9.1, BORON CONCENTRATION

CTS by eliminating the specific requirements for the boric acid solution to be used to restore compliance with the LCO.

The purpose of CTS 3.9.1 Action a is to restore the required SHUTDOWN MARGIN in a timely manner. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. Specifying the boric acid solution requirements in the Action is not necessary, since the ITS requires that action to restore the boron concentration be initiated immediately. This prompt action will result in the boron concentration being restored as quickly, or more quickly, than the CTS requirement. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.3 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.9.1.1 requires the LCO reactivity condition to be determined prior to removing or unbolting the reactor vessel head, and prior to withdrawal of any full length control rod in excess of 3 feet from its fully inserted position. ITS 3.9.1 does not contain this Surveillance Requirement.

The purpose of CTS 4.9.1.1 is to ensure that the LCO requirements are met prior to entering MODE 6 and that the reactor has sufficient SHUTDOWN MARGIN prior to withdrawing any control rods. This change is acceptable because the deleted Surveillance Requirement is not necessary to verify that the values used to meet the LCO are consistent with the safety analyses. Thus, appropriate values continue to be tested in a manner and at a frequency necessary to give confidence that the assumptions in the safety analyses are protected. ITS 3.9.1 requires that the boron concentration be met in MODE 6 or that action be immediately initiated to restore the boron concentration and that all positive reactivity additions be suspended. Therefore, verification that the boron concentration requirement is met must be performed prior to entering MODE 6 in order to avoid immediately entering into an Action and withdrawal of control rods is prohibited when the boron concentration requirement is not met. While the CTS Surveillance is not required, the level of protection provided is appropriate. This change is designated as less restrictive because Surveillances required in the CTS will not be required in the ITS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

3.9.1

LCO 3.9.1 Boron concentrations of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

- NOTE -
Only applicable to the refueling canal ~~and refueling canal~~ and refueling cavity when connected to the RCS.

(1)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Boron concentration not within limit.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend positive reactivity additions.	Immediately
	AND		
	A.3	Initiate action to restore boron concentration to within limit.	Immediately

Action a

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within the limit specified in the COLR.	72 hours

4.9.1.2

INSERT 1

(2)

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2

INSERT 1

SR 3.9.1.2	Verify boron concentration of refueling canal and refueling cavity is within the limit specified in the COLR.	Once within 72 hours prior to connecting the refueling canal and refueling cavity to the RCS

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JUSTIFICATION FOR DEVIATIONS
ITS 3.9.1, BORON CONCENTRATION

1. Typographical/grammatical error corrected.

2. ISTS SR 3.9.1.1 requires a verification that the boron concentration is within limit every 72 hours. The Bases for the SR states that prior to re-connecting portions of the refueling canal or the refueling cavity to the RCS, this SR must be met per SR 3.0.4. SR 3.0.4 requires the SR to be met prior to entering a MODE or other specified condition in the Applicability. However, SR 3.0.4 is only applicable in MODES 1, 2, 3, and 4; it is not applicable in MODE 6, the MODE in which ISTS 3.9.1 is applicable. Therefore, to meet the intent of the Bases requirement, a new SR has been added, SR 3.9.1.2, which requires a verification that the boron concentration of the refueling canal and refueling cavity is within the limit specified in the COLR once within 72 hours prior to connecting the refueling canal and refueling cavity to the RCS.

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Improved Standard Technical Specifications (ISTS) Bases Markup
and Justification for Deviations (JFDs)

B 3.9 REFUELING OPERATIONS

B 3.9.1 Boron Concentration

BASES

BACKGROUND

The limit on the boron concentrations of the Reactor Coolant System (RCS), the refueling canal, and the refueling cavity during refueling ensures that the reactor remains subcritical during MODE 6. Refueling boron concentration is the soluble boron concentration in the coolant in each of these volumes having direct access to the reactor core during refueling.

The soluble boron concentration offsets the core reactivity and is measured by chemical analysis of a representative sample of the coolant in each of the volumes. The refueling boron concentration limit is specified in the COLR. Plant procedures ensure the specified boron concentration in order to maintain an overall core reactivity of $k_{eff} \leq 0.95$ during fuel handling, with control rods and fuel assemblies assumed to be in the most adverse configuration (least negative reactivity) allowed by plant procedures.

INSERT 1

GDC 26 of 10 CFR 50, Appendix A, requires that two independent reactivity control systems of different design principles be provided (Ref. 1). One of these systems must be capable of holding the reactor core subcritical under cold conditions. The Chemical and Volume Control System (CVCS) is the system capable of maintaining the reactor subcritical in cold conditions by maintaining the boron concentration. 1

The reactor is brought to shutdown conditions before beginning operations to open the reactor vessel for refueling. After the RCS is cooled and depressurized and the vessel head is unbolted, the head is slowly removed to form the refueling cavity. The refueling canal and the refueling cavity are then flooded with borated water from the refueling water storage tank through the open reactor vessel by gravity feeding or by the use of the Residual Heat Removal (RHR) System pumps. 5 3

The pumping action of the RHR System in the RCS and the natural circulation due to thermal driving heads in the reactor vessel and refueling cavity mix the added concentrated boric acid with the water in the refueling canal. The RHR System is in operation during refueling (see LCO 3.9.5 "Residual Heat Removal (RHR) and Coolant Circulation - High Water Level," and LCO 3.9.6 "Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level") to provide forced circulation in the RCS and assist in maintaining the boron concentrations in the RCS, the refueling canal, and the refueling cavity above the COLR limit. 4 5 4

1

INSERT 1

Plant Specific Design Criterion (PSDC) 27 requires that two independent reactivity control systems, preferably of different design principles, be provided. According to PSDC 28 (Ref. 1), the reactivity controls must be capable of making and holding the core subcritical from any hot standby or hot operating condition.

BASES

APPLICABLE SAFETY ANALYSES

During refueling operations, the reactivity condition of the core is consistent with the initial conditions assumed for the boron dilution accident in the accident analysis and is conservative for MODE 6. The boron concentration limit specified in the COLR is based on the core reactivity at the beginning of each fuel cycle (the end of refueling) and includes an uncertainty allowance.

The required boron concentration and the plant refueling procedures that verify the correct fuel loading plan (including full core mapping) ensure that the k_{eff} of the core will remain ≤ 0.95 during the refueling operation. Hence, at least a 5% Δk/k margin of safety is established during refueling.

During refueling, the water volume in the spent fuel pool, the transfer canal, the refueling canal, the refueling cavity, and the reactor vessel form a single mass. As a result, the soluble boron concentration is relatively the same in each of these volumes.

The limiting boron dilution accident analyzed occurs in MODE 5 (Ref. 2). A detailed discussion of this event is provided in Bases B 3.1.1, "SHUTDOWN MARGIN (SDM)." 9

The RCS boron concentration satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO requires that a minimum boron concentration be maintained in the RCS, the refueling canal, and the refueling cavity while in MODE 6. The boron concentration limit specified in the COLR ensures that a core k_{eff} of ≤ 0.95 is maintained during fuel handling operations. Violation of the LCO could lead to an inadvertent criticality during MODE 6.

APPLICABILITY

This LCO is applicable in MODE 6 to ensure that the fuel in the reactor vessel will remain subcritical. The required boron concentration ensures a k_{eff} ≤ 0.95. Above MODE 6, LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," ensures that an adequate amount of negative reactivity is available to shut down the reactor and maintain it subcritical.

The Applicability is modified by a Note. The Note states that the limits on boron concentration are only applicable to the refueling canal and the refueling cavity when those volumes are connected to the Reactor Coolant System. When the refueling canal and the refueling cavity are isolated from the RCS, no potential path for boron dilution exists. RCS 6

(i.e., are in communication with) 5

BASES

ACTIONS

A.1 and A.2

Continuation of CORE ALTERATIONS or positive reactivity additions (including actions to reduce boron concentration) is contingent upon maintaining the unit in compliance with the LCO. If the boron concentration of any coolant volume in the RCS, the refueling canal, or the refueling cavity is less than its limit, all operations involving CORE ALTERATIONS or positive reactivity additions must be suspended immediately.

Suspension of CORE ALTERATIONS and positive reactivity additions shall not preclude moving a component to a safe position. Operations that individually add limited positive reactivity (e.g., temperature fluctuations from inventory addition or temperature control fluctuations), but when combined with all other operations affecting core reactivity (e.g., intentional boration) result in overall net negative reactivity addition, are not precluded by this action.

A.3

In addition to immediately suspending CORE ALTERATIONS and positive reactivity additions, boration to restore the concentration must be initiated immediately.

In determining the required combination of boration flow rate and concentration, no unique Design Basis Event must be satisfied. The only requirement is to restore the boron concentration to its required value as soon as possible. In order to raise the boron concentration as soon as possible, the operator should begin boration with the best source available for unit conditions.

Once actions have been initiated, they must be continued until the boron concentration is restored. The restoration time depends on the amount of boron that must be injected to reach the required concentration.

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1 and SR 3.9.1.2

This SR ensures that the coolant boron concentration in the RCS, and connected portions of the refueling canal and the refueling cavity, is within the COLR limits. The boron concentration of the coolant in each required volume is determined periodically by chemical analysis. Prior to re-connecting portions of the refueling canal or the refueling cavity to the RCS, this SR must be met per SR 3.0.4. If any dilution activity has occurred while the cavity or canal were disconnected from the RCS, this

and

INSERT A
Move to next page

Part of INSERT A

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR ensures the correct boron concentration is verified prior to communication with the RCS. 7

The SR 3.9.1.1 minimum Frequency of once every 72 hours is a reasonable amount of time to verify the boron concentration of representative samples. The Frequency is based on operating experience, which has shown 72 hours to be adequate. 7

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26. UFSAR, Section 1.4.5 1
2. FSAR, Chapter [15]. 3 2

The SR 3.9.1.2 Frequency of once within 72 hours prior to connecting the refueling canal and refueling cavity to the RCS ensures that

INSERT A
from previous page

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.1 BASES, BORON CONCENTRATION

1. CNP Units 1 and 2 were designed and under construction prior to the promulgation of 10 CFR 50, Appendix A. CNP Units 1 and 2 were designed and constructed to meet the intent of the proposed General Design Criteria, published in 1967. However, the CNP UFSAR contains discussions of the Plant Specific Design Criteria (PSDCs) used in the design of CNP Units 1 and 2. Bases references to the 10 CFR 50, Appendix A, criteria have been replaced with references to the appropriate section of the UFSAR.

2. The brackets have been removed and the proper plant specific information/value has been provided.

3. Changes are made (additions, deletions, and/or changes) to the ISTS Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

4. Changes are made to be consistent with changes made to the Specification.

5. Editorial change made for clarity.

6. Changes have been made to be consistent with similar words in other places in the ITS Bases.

7. Changes made to be consistent with the Specification.

8. Typographical/grammatical error corrected.

9. The paragraph and associated reference have been deleted since it is discussing a MODE 5 analysis, and this Specification is applicable in MODE 6.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.1, BORON CONCENTRATION

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 2

ITS 3.9.2, Nuclear Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.9 REFUELING OPERATIONS

M.1

INSTRUMENTATION

LA.1

LIMITING CONDITION FOR OPERATION

L.1

LCO 3.9.2

3.9.2 As a minimum, two source range neutron flux monitors shall be operating, each with continuous visual indication in the control room and one with audible indication in the containment.

OPERABLE

count rate circuit shall be OPERABLE

M.1

APPLICABILITY: MODE 6.

ACTION:

L.2

ACTION A

a. With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes except addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2.

M.2

b. The provisions of Specification 3.0.3 are not applicable.

A.2

Add proposed ACTION B

Add proposed ACTION C

M.3

SURVEILLANCE REQUIREMENTS

L.3

4.9.2 Each source range neutron flux monitor shall be demonstrated OPERABLE by performance of:

a. A CHANNEL FUNCTIONAL TEST at least once per 7 days, and

b. A CHANNEL FUNCTIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS, and

L.4

SR 3.9.2.1

c. A CHANNEL CHECK at least once per 12 hours during CORE ALTERATIONS.

M.4

Add proposed SR 3.9.2.2

M.5

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ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.9 REFUELING OPERATIONS

INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.9.2

3.9.2 As a minimum, two source range neutron flux monitors shall be operating, each with continuous visual indication in the control room and one with audible indication in the containment and control room.

OPERABLE

count rate circuit shall be OPERABLE

APPLICABILITY: MODE 6.

ACTION A

ACTION:

a. With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes except addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2.

b. The provisions of Specification 3.0.3 are not applicable.

Add proposed ACTION B

Add proposed ACTION C

SURVEILLANCE REQUIREMENTS

4.9.2 Each source range neutron flux monitor shall be demonstrated OPERABLE by performance of:

a. A CHANNEL FUNCTIONAL TEST at least once per 7 days, and

b. A CHANNEL FUNCTIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS, and

SR 3.9.2.1

c. A CHANNEL CHECK at least once per 12 hours during CORE ALTERATIONS.

Add proposed SR 3.9.2.2

M.1 LA.1 L.1 M.1 L.2 M.2 A.2 M.3 L.3 L.4 M.4 M.5

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DISCUSSION OF CHANGES
ITS 3.9.2, NUCLEAR INSTRUMENTATION

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.9.2 Action b contains the statement, "The provisions of Specification 3.0.3 are not applicable." ITS 3.9.2 does not contain an equivalent statement. This changes the CTS by deleting the Specification 3.0.3 exception.

This change is acceptable because the technical requirements have not changed. ITS LCO 3.0.3 is not applicable in MODE 6. Therefore, the CTS LCO 3.0.3 exception is not needed. This change is designated as administrative because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS 3.9.2 states, in part, that two source range neutron flux monitors shall be "operating" and that one has audible "indication." ITS 3.9.2 states that two source range neutron flux monitors shall be "OPERABLE" and one audible "count rate circuit shall be OPERABLE." This changes the CTS by requiring the source range neutron flux monitors to be OPERABLE, instead of just operating, and requiring the audible count rate circuit to be OPERABLE, instead of just being an indication.

The purpose of CTS 3.9.2 is to ensure that the source range neutron flux monitors are capable of performing the safety functions assumed in the accident analysis. However, as written, the CTS LCO wording could be interpreted to allow the source range neutron flux monitors to be operating in a location or condition that would prevent them from performing the assumed safety function and just provide an indication, in lieu of an OPERABLE count rate circuit. The ITS wording eliminates this possible misinterpretation. This change is acceptable because the source range neutron flux monitors must be OPERABLE (i.e., capable of performing their safety function) instead of just operating, and the count rate circuit must be OPERABLE. This change is designated as more restrictive because the ITS contains more specific requirements for a specific component.

M.2 CTS 3.9.1 Action a requires the immediate suspension of positive reactivity changes except for the addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2 (i.e., 2400 ppm). ITS 3.9.2 Required Action A.2 requires suspension of operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1. This changes the CTS by replacing the allowance to allow a positive

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reactivity change from the addition of water from the RWST, provided the boron concentration of the RWST is greater than 2400 ppm with a requirement that the boron concentration must meet the boron concentration of LCO 3.9.1.

The purpose of CTS 3.9.2 Action a is to provide assurance that activities that could result in reducing boron concentration such that the required SHUTDOWN MARGIN is not met will not occur when any source range neutron flux monitor is inoperable in MODE 6. Allowing positive reactivity additions from sources with boron concentrations meeting the requirements of ITS 3.9.1 preserves the required SHUTDOWN MARGIN. This change is acceptable because the ITS requires actions that prohibit activities that could result in reducing boron concentration such that the required SHUTDOWN MARGIN is not met. This change is designated as more restrictive because it provides more restrictive corrective actions in the ITS than in the CTS.

M.3 CTS 3.9.2 Action a states that with fewer than two source range channels operating, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes except addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2 (i.e., 2400 ppm). The ITS provides similar ACTIONS as the CTS (except where changed as described in DOCs M.2 and L.2). In addition, ITS 3.9.2 ACTION B requires additional actions when two source range neutron flux monitors are inoperable. The ITS requires immediate initiation of action to restore one source range neutron flux monitor to OPERABLE status and to perform a verification of boron concentration (per ITS SR 3.9.1.1) once per 12 hours. This changes the CTS requirements by requiring an additional verification of boron concentration every 12 hours when both source ranges are inoperable and by requiring an additional action to initiate immediate action to restore one source range neutron flux monitor to OPERABLE status.

The purpose of this change is to provide necessary Required Actions that are appropriate for a possible condition that could be encountered. This change is acceptable because the proposed Required Actions are reasonable and necessary to ensure the reactor is maintained in a safe condition. This change is more restrictive because it provides for additional actions that the CTS does not require.

M.4 CTS 4.9.2.c requires a CHANNEL CHECK to be performed once per 12 hours during CORE ALTERATIONS. ITS SR 3.9.2.1 requires a CHANNEL CHECK to be performed every 12 hours. This changes the CTS by requiring the CHANNEL CHECK to be performed every 12 hours even if CORE ALTERATIONS are not in progress.

The purpose of this change is to routinely verify the OPERABILITY of the source range monitors in all conditions in which the LCO applies, not just during CORE ALTERATIONS. This change is acceptable because the Surveillance verifies OPERABILITY of both monitors to ensure the reactor is maintained in a safe condition. This change is more restrictive because it provides for additional testing that the CTS does not require.

DISCUSSION OF CHANGES
ITS 3.9.2, NUCLEAR INSTRUMENTATION

M.5 CTS 4.9.2 specifies testing for the source range neutron flux instrumentation channels, but does not include a CHANNEL CALIBRATION. ITS SR 3.9.2.2 requires the performance of a CHANNEL CALIBRATION to be performed on the source range neutron flux monitors every 24 months. This changes the CTS by requiring a CHANNEL CALIBRATION every 24 months on each source range neutron flux monitor.

The purpose of this change is to ensure the proper testing is conducted at an appropriate Frequency. This change is acceptable because a CHANNEL CALIBRATION every 24 months will continue to ensure OPERABILITY and proper operation of the source range neutron flux monitors. This change is more restrictive because it provides for additional testing that the CTS does not require.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.9.2 states that two source range neutron flux monitors shall be operating, "each with continuous visual indication in the control room." ITS 3.9.2 LCO states that two source range neutron flux monitors shall be OPERABLE. This changes the CTS by moving the requirement that each channel has a continuous visual indication in the control room from the CTS to the Bases.

The removal of this detail, which is related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS retains the requirement that two channels be OPERABLE and continues to require the associated Surveillance to verify OPERABILITY. This change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 1 – Relaxation of LCO Requirements)* Unit 1 CTS 3.9.2 states that two source range neutron flux monitors shall be operating, each with continuous visual indication in the control room and one with audible indication "in the containment." Unit 2 CTS 3.9.2 includes the same statement, but also states that audible indication must be in the "control room." ITS 3.9.2 states that two source

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range neutron flux monitors shall be OPERABLE and one source range audible count rate circuit shall be OPERABLE. This changes the CTS by deleting the requirement for an audible indication to be "in the containment" and in the "control room."

This change is acceptable because the LCO requirements continue to ensure that the source range neutron flux monitor channels are maintained consistent with the safety analyses and licensing basis. The boron dilution analysis assumes that the operator has prompt and definite indication from the audible indication. However, the analysis does not assume a location for the audible indication. The ITS ensures that an audible indication is available, while allowing flexibility in locating the audible indication. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L.2 *(Category 4 – Relaxation of Required Action)* CTS 3.9.2 Action a states that with fewer than two source range neutron flux monitors operating, immediately suspend all operations involving positive reactivity changes except addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2 (i.e., 2400 ppm). ITS 3.9.2 Required Action A.2 states "Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1, Boron Concentration." This allows positive reactivity changes provided they do not reduce the boron concentration below the refueling limit. This changes the CTS requirements by allowing limited positive reactivity additions from sources in addition to the RWST.

This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. The requirement to maintain refueling boron concentration within limits will continue to ensure the unit will be operated within the assumptions of the safety analyses. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.3 *(Category 4 – Relaxation of Required Action)* CTS 3.9.2 Action a requires the immediate suspension of CORE ALTERATIONS or positive reactivity changes except for the addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2, in the event one source range neutron flux monitor with audible indication in the containment is not operating. ITS 3.9.2 ACTION C requires initiation of action to isolate unborated water sources in the event the required source range audible count rate circuit is inoperable. This changes the CTS by replacing the Action to immediately suspend CORE ALTERATIONS or positive reactivity changes except for the addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum

required by CTS 3.1.2.7.b.2, in the event one source range monitor with audible indication in the containment is not operating, with the Action to initiate action to isolate unborated water sources.

The purpose of CTS 3.9.2 Action a is to provide assurance that activities that could result in an inadvertent criticality will not occur when the required source range audible count rate circuit is inoperable in MODE 6. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. ITS 3.9.2 ACTION C requires actions to be taken to isolate sources of unborated water. This provides assurance that rapid dilution of boron concentration, which could result in rapid reduction in shutdown margin, will not occur. This change preserves the assumptions and conclusions of the boron dilution analysis. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.4 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.9.2.a and b state that a CHANNEL FUNCTIONAL TEST is required for the source range neutron flux monitors at least once per 7 days and within 8 hours prior to the initial start of CORE ALTERATIONS, respectively. ITS 3.9.2 does not require the performance of similar tests for the source range neutron flux monitors. This changes the CTS by deleting the CHANNEL FUNCTIONAL TESTS every 7 days and within 8 hours of CORE ALTERATIONS.

This change is acceptable because the deleted Surveillance Requirements are not necessary to verify that the equipment used to meet the LCO is consistent with the safety analysis. The source range neutron flux monitors continue to be tested in a manner and at a frequency necessary to give confidence that the assumptions in the safety analyses are protected. Thus, appropriate equipment continues to be tested in a manner and at a frequency necessary to give confidence that the assumptions in the safety analyses are protected. This change is designated as less restrictive because Surveillances required in the CTS will not be required in the ITS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.9 REFUELING OPERATIONS

3.9.~~3~~ 2 Nuclear Instrumentation

LCO 3.9.~~3~~ 2 Two source range neutron flux monitors shall be OPERABLE.

3.9.2

AND

~~A~~ One source range audible ~~[alarm]~~ count rate ~~/~~ circuit shall be OPERABLE. ~~/~~

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One ~~required~~ source range neutron flux monitor inoperable.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1 ~~a~~ "Boron Concentration."	Immediately
B. Two ~~required~~ source range neutron flux monitors inoperable.	B.1	Initiate action to restore one source range neutron flux monitor to OPERABLE status.	Immediately
	AND		
	B.2	Perform SR 3.9.1.1.	Once per 12 hours

Action a

DOC M.2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Doc L.3 ~~- REVIEWER'S NOTE - Condition C is included only for plants that assume a boron dilution event is mitigated by operator response to an audible source range indication.~~	C.1 Initiate action to isolate unborated water sources.	Immediately ②
C.~~1~~ Required source range audible ~~alarm~~ count rate ~~circuit~~ inoperable.		②

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
4.9.2.e SR 3.9.~~2~~ 1 ②	Perform CHANNEL CHECK.	12 hours ①
SR 3.9.~~2~~ 2	- NOTE - Neutron detectors are excluded from CHANNEL CALIBRATION.	①
Doc M.5	Perform CHANNEL CALIBRATION.	~~[18]~~ 24 months ②

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.2, NUCLEAR INSTRUMENTATION

1. CNP has analyzed a boron dilution event in MODE 6. Therefore, ISTS 3.9.2 is not included in the ITS and ISTS 3.9.3 is renumbered as ITS 3.9.2.

2. The brackets are removed and the proper plant specific information/value is provided.

3. Editorial correction to be consistent with the format of the ITS.

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Improved Standard Technical Specifications (ISTS) Bases Markup
and Justification for Deviations (JFDs)

B 3.9 REFUELING OPERATIONS

B 3.9.3 Nuclear Instrumentation

BASES

BACKGROUND

- REVIEWER'S NOTE -
Bracketed options are provided for source range OPERABILITY requirements to include audible alarm or count rate function. These options apply to plants that assume a boron dilution event that is mitigated by operator response to an audible indication. For plants that isolate all boron dilution paths (per LCO 3.9.2), the source range OPERABILITY includes only a visual monitoring function.

INSERT 1

The source range neutron flux monitors are used during refueling operations to monitor the core reactivity condition. The installed source range neutron flux monitors are part of the Nuclear Instrumentation System (NIS). These detectors are located external to the reactor vessel and detect neutrons leaking from the core.

Westinghouse

INSERT 2

The installed source range neutron flux monitors are BF3 detectors operating in the proportional region of the gas filled detector characteristic curve. The detectors monitor the neutron flux in counts per second. The instrument range covers six decades of neutron flux (1E+6 cps) with a [5]% instrument accuracy. The detectors also provide continuous visual indication in the control room and an audible [alarm] count rate to alert operators to a possible dilution accident. The NIS is designed in accordance with the criteria presented in Reference 1.

INSERT 3

INSERT 4

APPLICABLE SAFETY ANALYSES

Two OPERABLE source range neutron flux monitors are required to provide a signal to alert the operator to unexpected changes in core reactivity such as with a boron dilution accident (Ref. 2) or an improperly loaded fuel assembly. The audible count rate from the source range neutron flux monitors provides prompt and definite indication of any boron dilution. The count rate increase is proportional to the subcritical multiplication factor and allows operators to promptly recognize the initiation of a boron dilution event. Prompt recognition of the initiation of a boron dilution event is consistent with the assumptions of the safety analysis and is necessary to assure sufficient time is available for isolation of the primary water makeup source before SHUTDOWN MARGIN is lost (Ref. 2).

indication

3 **INSERT 1**

(i.e., the Westinghouse source range neutron flux monitors and the Thermo Gamma-Metrics neutron flux monitors)

3 **INSERT 2**

The Thermo Gamma-Metrics neutron flux monitors are part of the Thermo Gamma-Metrics Neutron Flux Monitoring System. Both of

3 **INSERT 3**

(selectable between proportional source range neutron flux monitors)

3 **INSERT 4**

There are two Thermo Gamma-Metrics neutron flux monitors. Each monitor includes two fission chamber detectors capable of monitoring a wide range from source level (shutdown) to full power reactor operation. In the source range, the detectors monitor the neutron flux in counts per second and are capable of detecting six decades of neutron flux. The detectors also provide continuous visual indication in the control room of source count rate and a source rate of change.

BASES

APPLICABLE SAFETY ANALYSES (continued)

- REVIEWER'S NOTE -

The need for a safety analysis for an uncontrolled boron dilution accident is eliminated by isolating all unborated water sources as required by LCO 3.9.2, "Unborated Water Source Isolation Valves."

The source range neutron flux monitors satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO requires that two source range neutron flux monitors be OPERABLE to ensure that redundant monitoring capability is available to detect changes in core reactivity. To be OPERABLE, each monitor must provide visual indication in the control room. In addition, at least one of the two monitors must provide an OPERABLE audible [alarm] [count rate] function to alert the operators to the initiation of a boron dilution event.

APPLICABILITY

In MODE 6, the source range neutron flux monitors must be OPERABLE to determine changes in core reactivity. There are no other direct means available to check core reactivity levels. In MODES 2, 3, 4, and 5, these same installed source range detectors and circuitry are also required to be OPERABLE by LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation" and LCO 3.3.6, "SDPS" as applicable.

ACTIONS

A.1 and A.2

With only one required source range neutron flux monitor OPERABLE, redundancy has been lost. Since these instruments are the only direct means of monitoring core reactivity conditions, CORE ALTERATIONS and introduction of coolant into the RCS with boron concentration less than required to meet the minimum boron concentration of LCO 3.9.1 must be suspended immediately. Suspending positive reactivity additions that could result in failure to meet the minimum boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that what would be required in the RCS for minimum refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position.

3

INSERT 5

(any combination of Westinghouse source range neutron flux and Thermo Gamma-Metrics neutron flux monitors)

3

INSERT 6

(which must be a Westinghouse source range neutron flux monitor, since the Thermo Gamma-Metrics neutron flux monitors do not have an audible count rate function)

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BASES

ACTIONS (continued)

B.1 (1)

With no required source range neutron flux monitor OPERABLE, action to restore a monitor to OPERABLE status shall be initiated immediately. Once initiated, action shall be continued until a source range neutron flux monitor is restored to OPERABLE status.

B.2 (1)

With no required source range neutron flux monitor OPERABLE, there are no direct means of detecting changes in core reactivity. However, since CORE ALTERATIONS and positive reactivity additions are not to be made, the core reactivity condition is stabilized until the source range neutron flux monitors are OPERABLE. This stabilized condition is determined by performing SR 3.9.1.1 to ensure that the required boron concentration exists.

The Completion Time of once per 12 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration and ensures that unplanned changes in boron concentration would be identified. The 12 hour Frequency is reasonable, considering the low probability of a change in core reactivity during this time period.

(1) C.1 (2)

With no audible ~~[alarm]~~ [count rate] OPERABLE, prompt and definite indication of a boron dilution event, consistent with the assumptions of the safety analysis, is lost. In this situation, the boron dilution event may not be detected quickly enough to assure sufficient time is available for operators to manually isolate the unborated water source and stop the dilution prior to the loss of SHUTDOWN MARGIN. Therefore, action must be taken to prevent an inadvertent boron dilution event from occurring. This is accomplished by isolating all the unborated water flow paths to the Reactor Coolant System. Isolating these flow paths ensures that an inadvertent dilution of the reactor coolant boron concentration is prevented. The Completion Time of "Immediately" assures a prompt response by operations and requires an operator to initiate actions to isolate an affected flow path immediately. Once actions are initiated, they must be continued until all the necessary flow paths are isolated or the circuit is restored to OPERABLE status. (2)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.3.1

SR 3.9.3.1 is the performance of a CHANNEL CHECK, which is a comparison of the parameter indicated on one channel to a similar parameter on other channel. It is based on the assumption that the two indication channels should be consistent with core conditions. Changes in fuel loading and core geometry can result in significant differences between source range channels, but each channel should be consistent with its local conditions.

The Frequency of 12 hours is consistent with the CHANNEL CHECK Frequency specified similarly for the same instruments in LCO 3.3.1.

SR 3.9.3.2

SR 3.9.3.2 is the performance of a CHANNEL CALIBRATION every 18 months. This SR is modified by a Note stating that neutron detectors are excluded from the CHANNEL CALIBRATION. The CHANNEL CALIBRATION for the source range neutron flux monitors consists of obtaining the detector plateau or preamp discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. The CHANNEL CALIBRATION also includes verification of the audible alarm, count rate function. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 13, GDC 26, GDC 28, and GDC 29.
2. UFSAR, Section 15.2.4.

7

INSERT 7

CHANNEL CALIBRATION is a complete check of the instrument loop, except the detector.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.9.2 BASES, NUCLEAR INSTRUMENTATION

1. Changes are made to reflect those changes made to the ISTS. Subsequent requirements are renumbered or revised, where applicable, to reflect the changes.

2. The brackets have been removed and the proper plant specific information/value has been provided.

3. Changes are made (additions, deletions, and/or changes) to the ISTS Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

4. The specific accuracy of the source range neutron flux monitors is not part of the licensing basis of CNP and has been deleted.

5. Typographical/grammatical error corrected.

6. CNP Units 1 and 2 were designed and under construction prior to the promulgation of 10 CFR 50, Appendix A. CNP Units 1 and 2 were designed and constructed to meet the intent of the proposed General Design Criteria, published in 1967. However, the CNP UFSAR contains discussions of the Plant Specific Design Criteria (PSDCs) used in the design of CNP Units 1 and 2. Bases references to the 10 CFR 50, Appendix A, criteria have been replaced with references to the appropriate section of the UFSAR.

7. Changes are made to be consistent with similar words in other places in the ITS Bases.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.2, NUCLEAR INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 3

ITS 3.9.3, Containment Penetrations

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.9 REFUELING OPERATIONS

CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

LCO 3.9.3

3.9.4 The containment building penetrations shall be in the following status:

LCO 3.9.3.a

a. The equipment door closed and held in place by a minimum of four bolts,

b. The airlock doors are controlled in the following manner:

LCO 3.9.3.b

1. A minimum of one door in each airlock is closed, or

2. Both airlock doors may be open provided:

a. One door in each airlock is OPERABLE*,

b. Refueling cavity level is greater than 23 feet above the fuel, and

c. A designated individual is available at all times to close the airlock if required.

A.2

A.3

LA.1

LCO 3.9.3.c

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

1. Closed by an isolation valve, blind flange, manual valve, or equivalent, or

2. Be capable of being closed by an OPERABLE automatic Containment Purge and Exhaust isolation valve.

NOTE

Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere via the auxiliary building vent may be unisolated under administrative controls.

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

L.1

ACTION:

ACTION A

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment building. The provisions of Specification 3.0.3 are not applicable.

A.4

SURVEILLANCE REQUIREMENTS

L.2

SR 3.9.3.1,
SR 3.9.3.2

4.9.4 Each of the above required containment building penetrations shall be determined to be in its required status within 100 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment building by:

L.1

L.3

* For the purpose of this Specification, an OPERABLE airlock door is a door that is capable of being closed and secured. Cables or hoses transversing the airlock shall be designed to allow for removal in a timely manner (e.g., quick disconnects).

LA.1

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A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.9 REFUELING OPERATIONS

CONTAINMENT BUILDING PENETRATIONS

SURVEILLANCE REQUIREMENTS (Continued)

SR 3.9.3.1 a. Verifying the penetrations are in the required status, or

SR 3.9.3.2 b. Testing the Containment Purge and Exhaust isolation valves per the applicable portions of Specification 4.6.3.1.2.

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A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.6 CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

See ITS 3.6.3

4.6.3.1.2 Each containment isolation valve shall be demonstrated OPERABLE at least once per 18 months by:

a. Verifying that on a Phase A containment isolation test signal, each Phase A isolation valve actuates to its isolation position.

b. Verifying that on a Phase B containment isolation test signal, each Phase B isolation valve actuates to its isolation position.

Add proposed SR 3.9.3.2 Note

L.3

SR 3.9.3.2

c. Verifying that on a Containment Purge and Exhaust isolation signal, each Purge and Exhaust valve actuates to its isolation position.

actual or simulated

L.4

See ITS 3.6.3

4.6.3.1.3 The isolation time of each power operated or automatic containment isolation valve shall be determined to be within its limit when tested pursuant to Specification 4.0.5.

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A.1

ITS

REFUELING OPERATIONS

CONTAINMENT PURGE AND EXHAUST ISOLATION SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.9.3.c.2

3.9.9 The Containment Purge and Exhaust isolation system shall be OPERABLE.

L.1

APPLICABILITY: During ~~Core Alterations or~~ movement of irradiated fuel within the containment.

ACTION:

LCO 3.9.3.c.1

With the Containment Purge and Exhaust isolation system inoperable, close each of the Purge and Exhaust penetrations providing direct access from the containment atmosphere to the outside atmosphere. ~~The provision of Specification 3.0.3 are not applicable.~~

A.4

SURVEILLANCE REQUIREMENTS

SR 3.9.3.2

4.9.9 The Containment Purge and Exhaust isolation system shall be demonstrated OPERABLE ~~within 100 hours prior to the start of and~~ at least ~~once per 7 days during CORE ALTERATIONS~~ by verifying that containment Purge and Exhaust isolation occurs on manual initiation and on a high radiation signal from each of the containment radiation instrumentation monitors.

L.2

L.1

See ITS 3.3.6

L.3

D. C. COOK - UNIT 1 3/4 9-10 Amendment No. 80

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.9 REFUELING OPERATIONS

CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

LCO 3.9.3 — 3.9.4 The containment building penetrations shall be in the following status:

LCO 3.9.3.a — a. The equipment door closed and held in place by a minimum of four bolts,

b. The airlock doors are controlled in the following manner:

LCO 3.9.3.b — 1. A minimum of one door in each airlock is closed, or — A.2

2. Both airlock doors may be open provided:

a. One door in each airlock is OPERABLE*,

b. ~~Refueling cavity level is greater than 23 feet above the fuel, and~~ — A.3

c. ~~A designated individual is available at all times to close the airlock if required.~~ — LA.1

LCO 3.9.3.c — c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

1. Closed by an isolation valve, blind flange, manual valve, or equivalent, or

2. Be capable of being closed by an OPERABLE automatic Containment Purge and Exhaust isolation valve.

NOTE

Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere via the auxiliary building vent may be unisolated under administrative controls.

APPLICABILITY: During ~~CORE ALTERATIONS~~ or movement of irradiated fuel within the containment. — L.1

ACTION:

ACTION A — With the requirements of the above specification not satisfied, immediately suspend ~~all operations involving CORE ALTERATIONS~~ or movement of irradiated fuel in the containment building. ~~The provisions of Specification 3.0.3 are not applicable.~~ — A.4

SURVEILLANCE REQUIREMENTS — L.2

SR 3.9.3.1, SR 3.9.3.2 — 4.9.4 Each of the above required containment building penetrations shall be determined to be in its required status ~~within 100 hours prior to the start of and~~ at least ~~once per 7 days~~ during ~~CORE ALTERATIONS~~ or movement of irradiated fuel in the containment building by: — L.1 — L.3

* ~~For the purpose of this Specification, an OPERABLE airlock door is a door that is capable of being closed and secured. Cables or hoses transversing the airlock shall be designed to allow for removal in a timely manner (e.g., quick disconnects).~~ — LA.1

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.9 REFUELING OPERATIONS

CONTAINMENT PENETRATIONS

SURVEILLANCE REQUIREMENTS (Continued)

SR 3.9.3.1

a. Verifying the penetrations are in the required status, or

SR 3.9.3.2

b. Testing the Containment Purge and Exhaust isolation valves per the applicable portions of Specification 4.6.3.1.2.

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A.1

ITS

SURVEILLANCE REQUIREMENTS (Continued)

See ITS 3.6.3

4.6.3.1.2 Each containment isolation valve specified shall be demonstrated OPERABLE at least once per 18 months by:

a. Verifying that on a Phase A containment isolation test signal, each Phase A isolation valve actuates to its isolation position.

b. Verifying that on a Phase B containment isolation test signal, each Phase B isolation valve actuates to its isolation position.

Add proposed SR 3.9.3.2 Note

L.3

SR 3.9.3.2

c. Verifying that on a Containment Purge and Exhaust isolation signal, each Purge and Exhaust valve actuates to its isolation position.

actual or simulated

L.4

See ITS 3.6.3

4.6.3.1.3.1 The isolation time of each power operated or automatic containment isolation valve shall be determined to be within its limit when tested pursuant to Specification 4.0.5.

A.1

ITS

REFUELING OPERATIONS

CONTAINMENT PURGE AND EXHAUST ISOLATION SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.9.3.c.2 3.9.9 The Containment Purge and Exhaust isolation system shall be OPERABLE.

L.1

APPLICABILITY: During ~~Core Alterations or~~ movement of irradiated fuel within the containment.

ACTION:

LCO 3.9.3.c.1 With the Containment Purge and Exhaust isolation system inoperable, close each of the Purge and Exhaust penetrations providing direct access from the containment atmosphere to the outside atmosphere. ~~The provisions of Specification 3.0.3 are not applicable.~~

A.4

SURVEILLANCE REQUIREMENTS

SR 3.9.3.2 4.9.9 The Containment Purge and Exhaust isolation system shall be demonstrated OPERABLE ~~within 100 hours prior to the start of and~~ at least once per 7 days ~~during CORE ALTERATIONS~~ by verifying that containment Purge and Exhaust isolation occurs on manual initiation and on a high radiation test signal from each of the containment radiation monitoring instrumentation channels.

L.2

L.1

See ITS 3.3.6

L.3

DISCUSSION OF CHANGES
ITS 3.9.3, CONTAINMENT PENETRATIONS

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.9.4.b requires a minimum of one door in each airlock to be closed or allows both airlock doors to be open provided one door in each airlock is OPERABLE, refueling cavity level is greater than 23 feet above the fuel, and a designated individual is available at all times to close the airlock if required. A footnote associated with CTS 3.9.4.b clarifies that for the purpose of this Specification, an OPERABLE air lock door is a door that is capable of being closed and secured. ITS 3.9.3 requires that one door in each air lock is capable of being closed. This changes the CTS by replacing the prescriptive requirements for control of the air lock doors with a more general requirement that the air lock doors must be capable of being closed. Other aspects of this change are discussed in DOC A.3 and DOC LA.1.

This change is acceptable because the CTS requirements have not changed. A door that is closed is a door that is also capable of being closed. The ITS requirements preserve the intent of the CTS. This change is designated as administrative because it does not result in technical changes to the CTS.

A.3 CTS 3.9.4.b.2.b allows both airlock doors to be open provided, in part, that the refueling cavity level is greater than 23 feet above the fuel. ITS 3.9.3 does not contain this restriction.

This change is acceptable because the requirement is duplicative of the requirements of ITS LCO 3.9.6, which requires that refueling cavity water level be maintained $\geq$ 23 feet above the top of the reactor vessel flange during movement of irradiated fuel assemblies within containment. This change is designated as administrative because it does not result in technical changes to the CTS.

A.4 The CTS 3.9.4 and CTS 3.9.9 Actions state "The provisions of Specification 3.0.3 are not applicable." ITS 3.9.3 does not include this statement. This changes CTS by deleting the Specification 3.0.3 exception.

This change is acceptable because the technical requirements have not changed. ITS LCO 3.0.3 is not applicable in MODE 6. Therefore, the CTS LCO 3.0.3 exception is not needed. This change is designated as administrative because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

None

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DISCUSSION OF CHANGES
ITS 3.9.3, CONTAINMENT PENETRATIONS

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 3.9.4.b.2.c allows both doors of each airlock to be open provided, in part, that a designated individual is available at all times to close an airlock door if required. A footnote associated with CTS 3.9.4.b clarifies that for the purpose of this Specification, an OPERABLE airlock door is a door that is capable of being closed and secured. The footnote also states that cables or hoses transversing the airlock shall be designed to allow for removal in a timely manner (e.g., quick disconnects). ITS 3.9.3.b requires that one door in each air lock is capable of being closed, but does not provide the level of description provided in the CTS. This changes the CTS by moving the requirement for a designated individual and the details on cables or hoses that transverse the air lock from the CTS to the Bases.

The removal of these details for compliance with the LCO from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement that the one door in each air lock be capable of being closed. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 2 – Relaxation of Applicability)* CTS 3.9.4 and CTS 3.9.9 are applicable during CORE ALTERATIONS and movement of irradiated fuel within the containment. ITS 3.9.3 is applicable during movement of irradiated fuel assemblies within containment. References to CORE ALTERATIONS in CTS 3.9.4 are eliminated in the Applicability, Action, and Surveillances. References to CORE ALTERATIONS in CTS 3.9.9 are eliminated in the Applicability and Surveillances. This changes the CTS by eliminating requirements for containment closure and the Containment Purge and Exhaust Isolation System during CORE ALTERATIONS.

The purpose of CTS 3.9.4 is to ensure the containment penetrations are in the condition assumed in the Fuel Handling Accident (FHA) inside containment analysis. The purpose of CTS 3.9.9 is to ensure the containment purge supply and exhaust valves are capable of being closed as assumed in the FHA inside containment analysis. This change is acceptable because the requirements

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continue to ensure that the structures, systems, and components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. There are no accidents postulated to occur during CORE ALTERATIONS that result in significant radioactive release except a FHA. The analysis for a FHA assumes that the accident is initiated only by movement of irradiated fuel. Therefore, imposing requirements during CORE ALTERATIONS in addition to during movement of irradiated fuel is unnecessary. This change is designated as less restrictive because the ITS LCO requirements are applicable in fewer operating conditions than in the CTS.

L.2 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS 4.9.4 states that specified containment penetration Surveillances shall be performed, in part, "within 100 hours prior to the start of" the specified conditions in the Applicability. ITS SR 3.9.3.1 and ITS SR 3.9.3.2 do not include the "within 100 hours prior to the start of" Frequency. ITS SR 3.0.1 states "SRs shall be met during the MODES or other specified conditions in the Applicability for the individual LCOs, unless otherwise stated in the SR." Therefore, the ITS requires that the Surveillances must be met prior to the initiation of movement of irradiated fuel. This changes the CTS by eliminating the stipulation that the Surveillances be met within 100 hours prior to entering the conditions specified in the Applicability.

The purpose of CTS 4.9.4 is to verify the equipment required to meet the LCO is OPERABLE. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. For CTS 4.9.4, the periodic Surveillance Frequency for verifying containment penetrations are in the required status is acceptable during the conditions specified in the Applicability, and is also acceptable during the period prior to entering the conditions specified in the Applicability. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.3 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS 4.9.4 and CTS 4.9.9 include a Surveillance Frequency of "once per 7 days" during conditions specified in the Applicability for performing Surveillance of the Containment Purge Supply and Exhaust System. The ITS SR 3.9.3.2 Frequency for the same requirement is 24 months. ITS SR 3.9.3.2 is also modified by a Note that states that SR 3.9.3.2 is not required to be met for containment purge supply and exhaust valve(s) in penetrations that are closed to comply with LCO 3.9.3.c.1. This changes the CTS by changing the Surveillance Frequency from 7 days to 24 months and adding the Note that the SR is not required to be met for containment purge supply and exhaust valve(s) in penetrations that are closed to comply with ITS LCO 3.9.3.c.1.

The purpose of CTS 4.9.4 and CTS 4.9.9 is to verify the equipment required to meet the LCO is OPERABLE. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. Containment purge supply and exhaust valve testing is still required, but at a Frequency consistent with the testing Frequency for containment isolation valves required in MODES 1, 2, 3, and 4. This Frequency provides an appropriate degree of assurance that the valves are

DISCUSSION OF CHANGES
ITS 3.9.3, CONTAINMENT PENETRATIONS

OPERABLE. When containment purge supply and exhaust valve(s) in penetrations are closed to comply with ITS LCO 3.9.3.c.1, the penetrations are in the expected condition (isolated) to mitigate the effects of a fuel handling accident inside containment. Therefore, there is no need for the actuation signal to reposition the valves to the closed position. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.4 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)*
CTS 4.6.3.1.2.c requires verification of the automatic actuation of the Containment Purge and Exhaust valves on a Containment Purge and Exhaust isolation signal (i.e., a test signal). ITS SR 3.9.3.2 specifies that the signal may be from either an "actual" or simulated (i.e., test) signal. This changes the CTS by explicitly allowing the use of either an actual or simulated signal for the test.

The purpose of CTS 4.6.3.1.2.c is to ensure that the containment purge and exhaust valves operate correctly upon receipt of an actuation signal. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. Equipment can not discriminate between an "actual," "simulated," or "test" signal and, therefore, the results of the testing are unaffected by the type of signal used to initiate the test. This change allows taking credit for unplanned actuation if sufficient information is collected to satisfy the Surveillance test requirements. The change also allows a simulated signal to be used, if necessary. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.9 REFUELING OPERATIONS

3.9.4 Containment Penetrations 3 1

LCO 3.9.4 1 The containment penetrations shall be in the following status:

3.9.4.a a. The equipment is hatch closed and held in place by four bolts, 3 2

3.9.4.b b. One door in each air lock is capable of being closed, and 2

3.9.4.c c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere is either:

3.9.4.c.1, 3.9.9 Action 1. Closed by a manual or automatic isolation valve, blind flange, or equivalent or 3 6

3.9.4.c.2, 3.9.9 2. Capable of being closed by an OPERABLE Containment Purge Supply and Exhaust Isolation System. 5

3.9.4 Note

- NOTE -

Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere via the auxiliary building vent may be unisolated under administrative controls. 4

APPLICABILITY: During movement of recently irradiated fuel assemblies within containment. 2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Suspend movement of recently irradiated fuel assemblies within containment.	Immediately

Action 2

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
4.9.4	SR 3.9.4.1	Verify each required containment penetration is in the required status.	7 days
4.6.3.1.2.c, 4.9.4, 4.9.9	SR 3.9.4.2	---------- **- NOTE -** Supply Not required to be met for containment purge and exhaust valve(s) in penetrations closed to comply with LCO 3.9.4.c.1. ---------- Supply Verify each required containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal.	~~[18]~~ 24 months

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.3, CONTAINMENT PENETRATIONS

1. CNP has analyzed a boron dilution event in MODE 6. Therefore, ISTS 3.9.2 is not included in the ITS and ISTS 3.9.4 is renumbered as ITS 3.9.3.

2. The brackets are removed and the proper plant specific information/value is provided.

3. Typographical/grammatical error corrected.

4. The Note has been modified consistent with the current licensing basis.

5. Changes have been made to be consistent with changes made in another Specification and to be consistent with plant specific nomenclature.

6. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

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Improved Standard Technical Specifications (ISTS) Bases Markup
and Justification for Deviations (JFDs)

B 3.9 REFUELING OPERATIONS

B 3.9 4 3 Containment Penetrations 1

BASES

BACKGROUND

During movement of recently irradiated fuel assemblies within containment, a release of fission product radioactivity within containment will be restricted from escaping to the environment when the LCO requirements are met. In MODES 1, 2, 3, and 4, this is accomplished by maintaining containment OPERABLE as described in LCO 3.6.1, "Containment." In MODE 6, the potential for containment pressurization as a result of an accident is not likely; therefore, requirements to isolate the containment from the outside atmosphere can be less stringent. The LCO requirements are referred to as "containment closure" rather than "containment OPERABILITY." Containment closure means that all potential escape paths are closed or capable of being closed. Since there is no potential for containment pressurization, the Appendix J leakage criteria and tests are not required. 2

The containment serves to contain fission product radioactivity that may be released from the reactor core following an accident, such that offsite radiation exposures are maintained well within the requirements of 10 CFR 100. Additionally, the containment provides radiation shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment equipment hatch, which is part of the containment pressure boundary, provides a means for moving large equipment and components into and out of containment. During movement of recently irradiated fuel assemblies within containment, the equipment hatch must be held in place by at least four bolts. Good engineering practice dictates that the bolts required by this LCO be approximately equally spaced. 2

The containment air locks, which are also part of the containment pressure boundary, provide a means for personnel access during MODES 1, 2, 3, and 4 unit operation in accordance with LCO 3.6.2, "Containment Air Locks." Each air lock has a door at both ends. The doors are normally interlocked to prevent simultaneous opening when containment OPERABILITY is required. During periods of unit shutdown when containment closure is not required, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. During movement of recently irradiated fuel assemblies within containment, containment closure is required; therefore, the door 2

BASES

BACKGROUND (continued)

interlock mechanism may remain disabled, but one air lock door must always remain capable of being closed.

The requirements for containment penetration closure ensure that a release of fission product radioactivity within containment will be restricted to within regulatory limits.

The Containment Purge and Exhaust System includes two subsystems. The normal subsystem includes a 42 inch purge penetration and a 42 inch exhaust penetration. The second subsystem, a minipurge system, includes an 8 inch purge penetration and an 8 inch exhaust penetration. During MODES 1, 2, 3, and 4, the two valves in each of the normal purge and exhaust penetrations are secured in the closed position. The two valves in each of the two minipurge penetrations can be opened intermittently, but are closed automatically by the Engineered Safety Features Actuation System (ESFAS). Neither of the subsystems is subject to a Specification in MODE 5.

In MODE 6, large air exchangers are necessary to conduct refueling operations. The normal 42 inch purge system is used for this purpose, and all four valves are closed by the ESFAS in accordance with LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation."

[The minipurge system remains operational in MODE 6, and all four valves are also closed by the ESFAS.

[or]

The minipurge system is not used in MODE 6. All four 8 inch valves are secured in the closed position.]

The other containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side. Isolation may be achieved by an OPERABLE automatic isolation valve, or by a manual isolation valve, blind flange, or equivalent. Equivalent isolation methods must be approved and may include use of a material that can provide a temporary, atmospheric pressure, ventilation barrier for the other containment penetrations during recently irradiated fuel movements (Ref. 1).

BASES

APPLICABLE SAFETY ANALYSES

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident [involving handling recently irradiated fuel]. The fuel handling accident is a postulated event that involves damage to irradiated fuel (Ref. 2). Fuel handling accidents, analyzed in Reference 2, include dropping a single irradiated fuel assembly and handling tool or a heavy object onto other irradiated fuel assemblies. The requirements of LCO 3.9.7, "Refueling Cavity Water Level," in conjunction with a minimum decay time of 100 hours prior to [irradiated fuel movement with containment closure capability or a minimum decay time of [X] days without containment closure capability], ensures that the release of fission product radioactivity, subsequent to a fuel handling accident, results in doses that are well within the guideline values specified in 10 CFR 100. Standard Review Plan, Section 15.7.4, Rev. 1 (Ref. 3), defines "well within" 10 CFR 100 to be 25% or less of the 10 CFR 100 values. The acceptance limits for offsite radiation exposure will be 25% of 10 CFR 100 values or the NRC staff approved licensing basis (e.g., a specified fraction of 10 CFR 100 limits).

involve

a small fraction of

Containment penetrations satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

- REVIEWER'S NOTE -

The allowance to have containment personnel airlock doors open and penetration flow paths with direct access from the containment atmosphere to the outside atmosphere to be unisolated during fuel movement and CORE ALTERATIONS is based on (1) confirmatory dose calculations of a fuel handling accident as approved by the NRC staff which indicate acceptable radiological consequences and (2) commitments from the licensee to implement acceptable administrative procedures that ensure in the event of a refueling accident (even though the containment fission product control function is not required to meet acceptable dose consequences) that the open airlock can and will be promptly closed following containment evacuation and that the open penetration(s) can and will be promptly closed. The time to close such penetrations or combination of penetrations shall be included in the confirmatory dose calculations.

This LCO limits the consequences of a fuel handling accident [involving handling recently irradiated fuel] in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO requires any penetration providing direct access from the containment atmosphere to the outside atmosphere to be closed except for the OPERABLE containment purge and exhaust penetrations

Supply

BASES

LCO (continued)

and the containment personnel air locks. For the OPERABLE containment purge and exhaust penetrations, this LCO ensures that these penetrations are isolable by the Containment Purge and Exhaust Isolation System. The OPERABILITY requirements for this LCO ensure that the automatic purge and exhaust valve closure times specified in the UFSAR can be achieved and, therefore, meet the assumptions used in the safety analysis to ensure that releases through the valves are terminated, such that radiological doses are within the acceptance limit.

The LCO is modified by a Note allowing penetration flow paths with direct access from the containment atmosphere to the outside atmosphere to be unisolated under administrative controls. Administrative controls ensure that 1) appropriate personnel are aware of the open status of the penetration flow path during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, and 2) specified individuals are designated and readily available to isolate the flow path in the event of a fuel handling accident.

The containment personnel air lock doors may be open during movement of irradiated fuel in the containment and during CORE ALTERATIONS provided that one door is capable of being closed in the event of a fuel handling accident. Should a fuel handling accident occur inside containment, one personnel air lock door will be closed following an evacuation of containment.

APPLICABILITY

The containment penetration requirements are applicable during movement of [recently] irradiated fuel assemblies within containment because this is when there is a potential for the limiting fuel handling accident. In MODES 1, 2, 3, and 4, containment penetration requirements are addressed by LCO 3.6.1. In MODES 5 and 6, when movement of irradiated fuel assemblies within containment is not being conducted, the potential for a fuel handling accident does not exist. [Additionally, due to radioactive decay, a fuel handling accident involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days) will result in doses that are well within the guideline values specified in 10 CFR 100 even without containment closure capability.] Therefore, under these conditions no requirements are placed on containment penetration status.

3

INSERT 1

A designated individual shall be available at all times during movement of irradiated fuel to close an air lock door if required. Cables or hoses transversing the air lock shall be designed to allow for removal in a timely manner (e.g., quick disconnects).

BASES

APPLICABILITY (continued)

- REVIEWER'S NOTE -

The addition of the term "recently" associated with handling irradiated fuel in all of the containment function Technical Specification requirements is only applicable to those licensees who have demonstrated by analysis that after sufficient radioactive decay has occurred, off-site doses resulting from a fuel handling accident remain below the Standard Review Plan limits (well within 10CFR100).

Additionally, licensees adding the term "recently" must make the following commitment which is consistent with draft NUMARC 93-01, Revision 3, Section 11.2.6 "Safety Assessment for Removal of Equipment from Service During Shutdown Conditions," subheading "Containment - Primary (PWR)/Secondary (BWR)."

"The following guidelines are included in the assessment of systems removed from service during movement irradiated fuel: 2

- During fuel handling/core alterations, ventilation system and radiation monitor availability (as defined in NUMARC 91-06) should be assessed, with respect to filtration and monitoring of releases from the fuel. Following shutdown, radioactivity in the fuel decays away fairly rapidly. The basis of the Technical Specification OPERABILITY amendment is the reduction in doses due to such decay. The goal of maintaining ventilation system and radiation monitor availability is to reduce doses even further below that provided by the natural decay.

- A single normal or continency method to promptly close primary or secondary containment penetrations should be developed. Such prompt methods need not completely block the penetration or be capable of resisting pressure.

The purpose of the "prompt methods" mentioned above are to enable ventilation systems to draw the release from a postulated fuel handling accident in the proper direction such that it can be treated and monitored."

BASES

ACTIONS

A.1

If the containment equipment hatch, air locks, or any containment penetration that provides direct access from the containment atmosphere to the outside atmosphere is not in the required status, including the Containment Purge and Exhaust ~~Isolation~~ System not capable of automatic actuation when the purge and exhaust valves are open, the unit must be placed in a condition where the isolation function is not needed. This is accomplished by immediately suspending movement of ~~recently~~ irradiated fuel assemblies within containment. Performance of these actions shall not preclude completion of movement of a component to a safe position.

Supply

Supply

SURVEILLANCE REQUIREMENTS

SR 3.9.~~4~~3.1

is in its

Status

This Surveillance demonstrates that each of the containment penetrations required ~~to be in its closed position~~ is in that position. ~~The Surveillance on the open purge and exhaust valves will demonstrate that the valves are not blocked from closing. Also the Surveillance will demonstrate that each valve operator has motive power, which will ensure that each valve is capable of being closed by an OPERABLE automatic containment purge and exhaust isolation signal.~~

INSERT 2

~~The Surveillance is performed every 7 days during movement of ~~recently~~ irradiated fuel assemblies within containment. The Surveillance interval is selected to be commensurate with the normal duration of time to complete fuel handling operations. A surveillance before the start of refueling operations will provide two or three surveillance verifications during the applicable period for this LCO. As such, this Surveillance ensures that a postulated fuel handling accident ~~involving handling recently irradiated fuel~~ that releases fission product radioactivity within the containment will not result in a release of significant fission product radioactivity to the environment in excess of those recommended by Standard Review Plan Section 15.7.4 (Reference 3).~~

INSERT 3

SR 3.9.~~4~~3.2

required

Supply

This Surveillance demonstrates that each containment purge and exhaust valve actuates to its isolation position on manual initiation or on an actual or simulated high radiation signal. The ~~18~~ 24 month Frequency maintains consistency with other similar ~~ESFAS instrumentation and~~ valve testing requirements. ~~In LCO 3.3.6, the Containment Purge and Exhaust Isolation instrumentation requires a CHANNEL CHECK every 12 hours and a COT every 92 days to ensure the channel OPERABILITY~~

INSERT 4

5 **INSERT 2**

The LCO 3.9.3.c.2 status requirement, which requires penetrations to be capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System, can be verified by ensuring each required

3 **INSERT 3**

a small fraction of the guideline values specified in 10 CFR 100

3 **INSERT 4**

LCO 3.3.6, "Containment Purge Supply and Exhaust System Isolation Instrumentation," provides additional Surveillance Requirements for the containment purge supply and exhaust valve actuation circuitry.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

during refueling operations. Every 18 months a CHANNEL CALIBRATION is performed. The system actuation response time is demonstrated every 18 months, during refueling, on a STAGGERED TEST BASIS. SR 3.6.3.5 demonstrates that the isolation time of each valve is in accordance with the Inservice Testing Program requirements. These Surveillances performed during MODE 6 will ensure that the valves are capable of closing after a postulated fuel handling accident involving handling recently irradiated fuel to limit a release of fission product radioactivity from the containment.

The SR is modified by a Note stating that this Surveillance is not required to be met for valves in isolated penetrations. The LCO provides the option to close penetrations in lieu of requiring automatic acutation capability.

REFERENCES

1. GPU Nuclear Safety Evaluation SE-0002000-001, Rev. 0, May 20, 1988.
2. UFSAR, Section 15.4.5.
3. NUREG-0800, Section 15.7.4, Rev. 1, July 1981.

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.3 BASES, CONTAINMENT PENETRATIONS

1. Changes are made to reflect consistency with or those changes made to the Specification. Subsequent requirements are renumbered or revised, where applicable, to reflect the changes.

2. The brackets have been removed and the proper plant specific information/value has been provided.

3. Changes are made (additions, deletions, and/or changes) to the ISTS Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

4. The reference to a Fuel Handling Accident being initiated by CORE ALTERATIONS or the dropping of a heavy object onto irradiated fuel assemblies is deleted from the Applicable Safety Analyses section of the Bases. CORE ALTERATIONS other than irradiated fuel movement inside containment and dropping of a heavy object onto irradiated fuel assemblies are not assumed to initiate a Fuel Handling Accident. Only the dropping of an irradiated fuel assembly is assumed to initiate a Fuel Handling Accident.

5. Changes have been made to be consistent with the ISTS.

6. Typographical/grammatical error corrected.

7. Editorial change for clarity.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.3, CONTAINMENT PENETRATIONS

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 4

ITS 3.9.4, Residual Heat Removal (RHR) and Coolant Circulation - High Water Level

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A.1

REFUELING OPERATIONS

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

LIMITING CONDITION FOR OPERATION

M.1

LCO 3.9.4

3.9.8.1 At least one residual heat removal loop shall be in operation.

OPERABLE and

A.2

APPLICABILITY: MODE 6.

with the water level ≥ 23 ft above the top of the reactor vessel flange

A.3

ACTION:

ACTION A

a. With less than one residual heat removal loop in operation, except as provided in b. below, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System.* Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

L.1

L.2

Add proposed Required Action A.3

M.2

LCO 3.9.4 Note

b. The residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

M.3

c. ~~The provisions of Specification 3.0.3 are not applicable.~~

A.4

SURVEILLANCE REQUIREMENTS

SR 3.9.4.1

4.9.8.1 A residual heat removal loop shall be determined to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2000 gpm at least once per 24 hours.

12

M.4

* For purposes of this specification, addition of water from the RWST does not constitute a dilution activity provided the boron concentration in the RWST is greater than or equal to the minimum required by specification 3.1.2.7.b.2.

L.1

ITS

A.1

REFUELING OPERATIONS

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

LIMITING CONDITION FOR OPERATION

M.1

OPERABLE and

3.9.8.1 At least one residual heat removal loop shall be in operation.

A.2

LCO 3.9.4

APPLICABILITY: MODE 6.

with the water level ≥ 23 ft above the top of the reactor vessel flange

A.3

ACTION:

a. With less than one residual heat removal loop in operation, except as provided in b. below, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System.* Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

L.1

L.2

ACTION A

Add proposed Required Action A.3

M.2

b. The residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

LCO 3.9.4 Note

M.3

c. ~~The provisions of Specification 3.0.3 are~~ not applicable.

A.4

SURVEILLANCE REQUIREMENTS

4.9.8.1 A residual heat removal loop shall be determined to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2000 gpm at least once per 24 hours.

SR 3.9.4.1

12

M.4

* For purposes of this specification, addition of water from the RWST does not constitute a dilution activity provided the boron concentration in the RWST is greater than or equal to the minimum required by specification 3.1.2.7.b.2.

L.1

DISCUSSION OF CHANGES
ITS 3.9.4, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - HIGH WATER LEVEL

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.9.8.1 requires at least one residual heat removal loop to be in operation in MODE 6. ITS 3.9.4 requires one RHR loop to be OPERABLE and in operation in MODE 6 with the water level greater than or equal to 23 feet above the top of the reactor vessel flange. However, ITS 3.9.5 covers the Applicability of MODE 6 with water level less than 23 feet above the top of the reactor vessel flange. This changes the CTS by splitting the requirements associated with CTS 3.9.8.1 into two Applicabilities, one for MODE 6 with water level < 23 feet above the top of the reactor vessel flange, and one for MODE 6 with water level greater than of equal to 23 feet above the reactor vessel flange.

The purpose of CTS 3.9.8.1 is to ensure that adequate decay heat removal capability is in operation and that the coolant is circulated in MODE 6. This change is acceptable because the requirements continue to ensure that the process variables are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. MODE 6 RHR and coolant circulation requirements are governed by ITS 3.9.4, "Residual Heat Removal (RHR) and Coolant Circulation – High Water Level," and ITS 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level." The combination of ITS 3.9.4 and ITS 3.9.5 ensures that the appropriate RHR loops are available in MODE 6 regardless of the water level. This change is designated as administrative because it does not result in technical changes to the CTS.

A.3 CTS 3.9.8.1 Action a states, in part, that with less than one RHR loop in operation, suspend all operations involving an increase in the reactor decay heat load of the Reactor Coolant System. ITS 3.9.4 Required Action A.2 states, in part, that with the RHR loop requirements not met, suspend loading irradiated fuel assemblies in the core. This changes the CTS by requiring that the loading of irradiated fuel assemblies be suspended instead of requiring that all operations involving an increase in the reactor decay heat load be suspended.

This change is acceptable because the requirements have not changed. The reactor decay heat load is generated only by irradiated fuel. The only method of increasing the decay heat load of a reactor in MODE 6 is to load additional irradiated fuel assemblies into the core. Therefore, the CTS and ITS requirements are equivalent. This change is designated as administrative because it does not result in technical changes to the CTS.

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DISCUSSION OF CHANGES
ITS 3.9.4, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - HIGH WATER LEVEL

A.4 CTS 3.9.8.1 Action c states "The provisions of Specification 3.0.3 are not applicable." ITS 3.9.4 does not include this statement. This changes CTS by deleting the Specification 3.0.3 exception.

This change is acceptable because the technical requirements have not changed. ITS LCO 3.0.3 is not applicable in MODE 6. Therefore, the CTS LCO 3.0.3 exception is not needed. This change is designated as administrative because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS 3.9.8.1 requires that at least one residual heat removal loop be in operation. ITS 3.9.4 requires that one RHR loop shall be OPERABLE and in operation. This changes the CTS by requiring the RHR loop to be OPERABLE, instead of just in operation.

The purpose of CTS 3.9.8.1 is to ensure that adequate decay heat removal and coolant circulation are available in MODE 6. However, the CTS LCO could be interpreted as allowing an RHR loop to be placed in operation that was not OPERABLE. The ITS eliminates this possible misinterpretation. This change is acceptable because the RHR loop must be OPERABLE (i.e., capable of performing its safety function) instead of just being in operation. This change is designated as more restrictive because the ITS contains more specific requirements on a component.

M.2 The CTS 3.9.8.1 Actions do not include an action to immediately initiate action to satisfy the RHR loop requirements in the event the RHR loop requirements are not met. ITS 3.9.4 Required Action A.3 requires that action be immediately initiated to satisfy the RHR loop requirements. This changes the CTS by requiring that action be taken immediately to satisfy the RHR loop requirements.

The purpose of CTS 3.9.8.1 is to ensure that adequate decay heat removal and coolant circulation are available in MODE 6. Although decay heat is removed from the Reactor Coolant System via natural circulation to the bulk of water contained in the refueling canal, this method of heat transfer can continue for only a discrete amount of time before boiling would occur. This change is acceptable because it requires that action be initiated to restore the RHR loop requirements in order to restore forced coolant flow and heat removal. This change is designated as more restrictive because additional actions will be required in the ITS than are required in the CTS.

M.3 CTS 3.9.8.1 Action b states that the RHR loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs. The ITS LCO 3.9.4 Note states that the required RHR loop may be removed from operation for $\leq$ 1 hour per 8 hour period, provided no operations are permitted that would cause introduction into the Reactor Coolant System, coolant with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1, "Boron Concentration." This results in two changes

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to the CTS. First, the allowance to remove RHR from operation is no longer restricted to CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs. Second, the use of the allowance in the ITS is predicated on prohibiting operations that would cause introduction into the RCS, coolant with a boron concentration less than that required to meet the boron concentration of LCO 3.9.1.

This change is acceptable because it applies appropriate controls during periods when RHR is not in operation. The ITS requirement prohibiting operations which would cause a reduction in the RCS boron concentration below that required to maintain the required shutdown margin is necessary to avoid unexpected reactivity changes. Under the ITS definition of CORE ALTERATIONS, many activities that would be considered CORE ALTERATIONS in the CTS, such as core mapping, are not considered CORE ALTERATIONS in the ITS. Therefore, the application of the allowance is expanded in the ITS to cover other activities beyond CORE ALTERATIONS. This change is nominally less restrictive, but represents no practical operational change, and the overall change is considered more restrictive. This change is designated as more restrictive because it imposes a new condition to be met when an RHR loop is not in operation.

M.4 CTS 4.9.8.1 requires that a residual heat removal loop shall be determined to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2000 gpm at least once per 24 hours. ITS SR 3.9.4.1 requires the same verification every 12 hours. This changes the CTS by requiring that RHR loop operation and reactor coolant flow rate be verified every 12 hours instead of every 24 hours.

The purpose of CTS 4.9.8.1 is to ensure that adequate decay heat removal and coolant circulation are available in MODE 6. This change is acceptable since it results in an increased Frequency of performance. The 12 hour Frequency is consistent with similar CTS Surveillances in MODES 4 and 5, and with similar SRs in the ITS. This change is designated as more restrictive because the Surveillance will be performed at an increased Frequency in the ITS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 – Relaxation of Required Action)* CTS 3.9.8.1 Action a states, in part, that with less than one RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System. This

DISCUSSION OF CHANGES
ITS 3.9.4, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - HIGH WATER LEVEL

CTS Action is modified by a footnote which states that addition of water from the RWST does not constitute a dilution activity provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2 (i.e., 2400 ppm). ITS 3.9.4 Required Action A.1 states that with the RHR loop requirements not met, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1, "Boron Concentration." ITS 3.9.1 requires boron concentration to be within limit. This changes the CTS by allowing coolant with boron concentration less than the RCS boron concentration, but greater than the boron concentration limit in ITS LCO 3.9.1, to be added to the RCS from sources other than the RWST when the RHR requirements are not met.

The purpose of CTS 3.9.8.1 Action a is to ensure that the required SHUTDOWN MARGIN is maintained during periods when the RHR requirements are not met. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABILITY status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of an accident occurring during the repair period. The Required Actions ensure that the RCS boron concentration is maintained within the limits of ITS LCO 3.9.1, which is sufficient to ensure that adequate SHUTDOWN MARGIN is maintained. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.2 *(Category 4 – Relaxation of Required Action)* CTS 3.9.8.1 Action a states, in part, that with less than one RHR loop in operation, close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours. ITS 3.9.4 Required Actions A.4, A.5, and A.6 state that with the RHR loop requirements not met, within 4 hours close and secure the equipment hatch with at least four bolts, close one door in each air lock, and verify each penetration providing direct access from the containment atmosphere to the outside atmosphere is either closed with a manual or automatic isolation valve, blind flange, or equivalent, or is capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System. This changes the CTS Actions by allowing penetrations capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System to remain open when the RHR requirements are not met.

The purpose of CTS 3.9.8.1 Action a is to ensure that radioactive material does not escape the containment should the RHR requirements continue to not be met and boiling occurs in the core. Therefore, containment penetrations are closed to seal the containment. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition,

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considering the OPERABILITY status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of an accident occurring during the repair period. The Required Actions are consistent with the actions taken for containment closure in CTS 3.9.4 and ITS 3.9.3. Penetrations which can be closed by an OPERABLE Containment Purge Supply and Exhaust System do not need to be closed if RHR is inoperable, since the presence of radioactivity in the containment will cause the valves to close automatically, thus performing the isolation function. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.9 REFUELING OPERATIONS

3.9.5 Residual Heat Removal (RHR) and Coolant Circulation - High Water Level 1

3.9.8.1 LCO 3.9.5 4 One RHR loop shall be OPERABLE and in operation. 1

removed from

- NOTE -

TSTF-438

Action b

The required RHR loop may be not in operation for ≤ 1 hour per 8 hour period, provided no operations are permitted that would cause introduction into the Reactor Coolant System, coolant with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1, "Boron Concentration." 2

APPLICABILITY: MODE 6 with the water level ≥ 23 ft above the top of reactor vessel flange.

ACTIONS

Action a

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RHR loop requirements not met.	A.1	Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
	AND		
	A.2	Suspend loading irradiated fuel assemblies in the core.	Immediately
	AND		
	A.3	Initiate action to satisfy RHR loop requirements.	Immediately
	AND		

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Action a	A.4 Close equipment hatch and secure with four bolts.	4 hours
	AND	
	A.5 Close one door in each air lock.	4 hours
	AND	
	A.6.1 Close each penetration providing direct access from the containment atmosphere to the outside atmosphere with a manual or automatic isolation valve, blind flange, or equivalent.	4 hours
	OR	
	A.6.2 Verify each penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 2800 gpm.	12 hours

4.9.8.1

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.4, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - HIGH WATER LEVEL

1. CNP has analyzed a boron dilution event in MODE 6. Therefore, ISTS 3.9.2 is not included in the ITS and ISTS 3.9.5 is renumbered as ITS 3.9.4.

2. Editorial correction to be consistent with the format of the ITS.

3. The brackets are removed and the proper plant specific information/value is provided.

4. ISTS 3.9.5 Required Actions A.6.1 and A.6.2 are connected by an "OR" logical connector, such that either one can be performed to meet the requirements of the ACTION. However, the two Required Actions are applicable to all the penetrations; either Required Action A.6.1 or Required Action A.6.2 must be performed for all the penetrations. Thus, this will not allow one penetration to be isolated by use of a manual valve and another penetration to be capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System. This is not the intent of the requirement. The requirement is based on ISTS LCO 3.9.4 (ITS LCO 3.9.3), which requires each penetration to be either: a) closed by a manual or automatic isolation valve, blind flange, or equivalent; or b) capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System. For consistency with the actual LCO requirement, ISTS 3.9.5 Required Actions A.6.1 and A.6.2 have been combined into a single Required Action in ITS 3.9.4 Required Action A.6.

5. Changes have been made to be consistent with changes made in another Specification and to be consistent with plant specific nomenclature.

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Improved Standard Technical Specifications (ISTS) Bases Markup
and Justification for Deviations (JFDs)

B 3.9 REFUELING OPERATIONS

B 3.9.~~5~~ 4 Residual Heat Removal (RHR) and Coolant Circulation - High Water Level

BASES

BACKGROUND

The purpose of the RHR System in MODE 6 is to remove decay heat and sensible heat from the Reactor Coolant System (RCS) ~~as required by GDC 34~~ to provide mixing of borated coolant and to prevent boron stratification (Ref. 1). Heat is removed from the RCS by circulating reactor coolant through the RHR heat exchanger(s), where the heat is transferred to the Component Cooling Water System. The coolant is then returned to the RCS via the RCS cold leg(s). Operation of the RHR System for normal cooldown or decay heat removal is manually accomplished from the control room. The heat removal rate is adjusted by controlling the flow of reactor coolant through the RHR heat exchanger(s) and the bypass. Mixing of the reactor coolant is maintained by this continuous circulation of reactor coolant through the RHR System.

INSERT 1

APPLICABLE SAFETY ANALYSES

If the reactor coolant temperature is not maintained below 200°F, boiling of the reactor coolant could result. This could lead to a loss of coolant in the reactor vessel. Additionally, boiling of the reactor coolant could lead to a reduction in boron concentration in the coolant due to boron plating out on components near the areas of the boiling activity. The loss of reactor coolant and the reduction of boron concentration in the reactor coolant would eventually challenge the integrity of the fuel cladding, which is a fission product barrier. One ~~train~~ loop of the RHR System is required to be operational in MODE 6, with the water level ≥ 23 ft above the top of the reactor vessel flange, to prevent this challenge. The LCO does permit ~~de-energizing~~ to be removed from operation the RHR pump for short durations, under the condition that the boron concentration is not diluted. This conditional ~~de-energizing~~ stopping of the RHR pump does not result in a challenge to the fission product barrier. TSTF-438

The RHR System satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

LCO

Only one RHR loop is required for decay heat removal in MODE 6, with the water level ≥ 23 ft above the top of the reactor vessel flange. Only one RHR loop is required to be OPERABLE, because the volume of water above the reactor vessel flange provides backup decay heat removal capability. At least one RHR loop must be OPERABLE and in operation to provide:

a. Removal of decay heat; and

4 **INSERT 1**

, as well as adjustments in Component Cooling Water System temperature and flow

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BASES

LCO (continued)

b. Mixing of borated coolant to minimize the possibility of criticality, ~~and~~ . 7

~~c. Indication of reactor coolant temperature.~~ 7

An OPERABLE RHR loop includes an RHR pump, a heat exchanger, valves, piping, instruments, and controls to ensure an OPERABLE flow path ~~and to determine the low end temperature~~. The flow path starts in one of the RCS hot legs and is returned to the RCS cold legs. 7

at least one of 4

The LCO is modified by a Note that allows the required operating RHR loop to ~~not be in~~ operation for up to 1 hour per 8 hour period, provided no operations are permitted that would dilute the RCS boron concentration introduction of coolant into the RCS with boron concentration less than required to meet the minimum boron concentration of LCO 3.9.1. Boron concentration reduction with coolant at boron concentrations less than required to assure the RCS boron concentration is maintained is prohibited because uniform concentration distribution cannot be ensured without forced circulation. This permits operations such as core mapping or alterations in the vicinity of the reactor vessel hot leg nozzles and RCS to RHR isolation valve testing. During this 1 hour period, decay heat is removed by natural convection to the large mass of water in the refueling cavity. TSTF-438 removed from by 8

APPLICABILITY

One RHR loop must be OPERABLE and in operation in MODE 6, with the water level ≥ 23 ft above the top of the reactor vessel flange, to provide decay heat removal. The 23 ft water level was selected because it corresponds to the 23 ft requirement established for fuel movement in LCO 3.9.~~8~~ 6, "Refueling Cavity Water Level." Requirements for the RHR System in other MODES are covered by LCOs in Section 3.4, Reactor Coolant System (RCS), and Section 3.5, Emergency Core Cooling Systems (ECCS). RHR loop requirements in MODE 6 with the water level < 23 ft are located in LCO 3.9.~~6~~ 5, "Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level." 5 1 5 1

ACTIONS

RHR loop requirements are met by having one RHR loop OPERABLE and in operation, except as permitted in the Note to the LCO.

A.1

If RHR loop requirements are not met, there will be no forced circulation to provide mixing to establish uniform boron concentrations. Suspending positive reactivity additions that could result in failure to meet the

BASES

ACTIONS (continued)

minimum boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that what would be required in the RCS for minimum refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation.

A.2

If RHR loop requirements are not met, actions shall be taken immediately to suspend loading of irradiated fuel assemblies in the core. With no forced circulation cooling, decay heat removal from the core occurs by natural convection to the heat sink provided by the water above the core. A minimum refueling water level of 23 ft above the reactor vessel flange provides an adequate available heat sink. Suspending any operation that would increase decay heat load, such as loading a fuel assembly, is a prudent action under this condition.

A.3

If RHR loop requirements are not met, actions shall be initiated and continued in order to satisfy RHR loop requirements. With the unit in MODE 6 and the refueling water level ≥ 23 ft above the top of the reactor vessel flange, corrective actions shall be initiated immediately.

A.4, A.5, A.6.1, and A.6.2

If no RHR is in operation, the following actions must be taken:

a. The equipment hatch must be closed and secured with four bolts;

b. One door in each air lock must be closed; and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere must be either closed by a manual or automatic isolation valve, blind flange, or equivalent, or verified to be capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

With RHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Performing the actions described above ensures that all containment

BASES

ACTIONS (continued)

penetrations are either closed or can be closed so that the dose limits are not exceeded.

The Completion Time of 4 hours allows fixing of most RHR problems and is reasonable, based on the low probability of the coolant boiling in that time.

SURVEILLANCE REQUIREMENTS

SR 3.9.~~5~~1 4

1

This Surveillance demonstrates that the RHR loop is in operation and circulating reactor coolant. The flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability and to prevent thermal and boron stratification in the core. The Frequency of 12 hours is sufficient, considering the flow, temperature, pump control, and alarm indications available to the operator in the control room for monitoring the RHR System.

REFERENCES

1. UFSAR, Section ~~15.5.7~~ 9.3.2 6

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.4 BASES, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - HIGH WATER LEVEL

1. Changes are made to reflect those changes made to the ISTS. Subsequent requirements are renumbered or revised, where applicable, to reflect the changes.

2. CNP Units 1 and 2 were designed and under construction prior to the promulgation of 10 CFR 50, Appendix A. CNP Units 1 and 2 were designed and constructed to meet the intent of the proposed General Design Criteria, published in 1967. However, the CNP UFSAR contains discussions of the Plant Specific Design Criteria (PSDCs) used in the design of CNP Units 1 and 2. Bases references to the 10 CFR 50, Appendix A, criteria have been replaced with references to the appropriate section of the UFSAR.

3. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

4. Changes are made (additions, deletions, and/or changes) to the ISTS Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

5. The wording has been modified, as Section 3.5 does not provide requirements for the RHR Shutdown Cooling function.

6. The brackets have been removed and the proper plant specific information/value has been provided.

7. Changes have been made to be consistent with the ISTS.

8. Typographical/grammatical error corrected.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.4, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION – HIGH WATER LEVEL

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 5

ITS 3.9.5, Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A.1

REFUELING OPERATIONS

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

LIMITING CONDITION FOR OPERATION

LCO 3.9.5

3.9.8.1 At least one residual heat removal loop shall be in operation.

Add proposed LCO Note 1

L.3

APPLICABILITY: MODE 6.

with the water level < 23 ft above the top of the reactor vessel flange

A.2

ACTION:

A.3

ACTION B

a. With less than one residual heat removal loop in operation, except as provided in b. below, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System.* Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

L.1

L.2

Add proposed Required Action B.2

M.1

See ITS 3.9.4

b. The residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

c. ~~The provisions of Specification 3.0.3 are not applicable.~~

A.4

SURVEILLANCE REQUIREMENTS

SR 3.9.5.1

4.9.8.1 A residual heat removal loop shall be determined to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2000 gpm at least once per 24 hours.

12

M.2

* For purposes of this specification, addition of water from the RWST does not constitute a dilution activity provided the boron concentration in the RWST is greater than or equal to the minimum required by specification 3.1.2.7.b.2.

L.1

ITS

A.1

REFUELING OPERATIONS

LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

LCO 3.9.5

3.9.8.2 Two independent Residual Heat Removal (RHR) loops shall be OPERABLE.

A.5

Add proposed LCO Note 2

L.3

APPLICABILITY: MODE 6 when the water level above the top of the reactor pressure vessel flange is less than 23 feet.

ACTION:

ACTION A

a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.

A.6

Add proposed Required Action A.2

b. ~~The provisions of Specification 3.0.3 are not applicable.~~

A.4

SURVEILLANCE REQUIREMENTS

4.9.8.2 ~~The required Residual Heat Removal loops shall be determined OPERABLE per Specification 4.0.5.~~

L.4

Add proposed SR 3.9.5.2 and Note

M.3

~~The normal or emergency power source may be inoperable for each RHR loop.~~

A.5

D. C. COOK - UNIT 1 3/4 9-9a Amendment No.78

ITS

A.1

REFUELING OPERATIONS

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

LIMITING CONDITION FOR OPERATION

L.3

LCO 3.9.5

3.9.8.1 At least one residual heat removal loop shall be in operation.

Add proposed LCO Note 1

A.2

APPLICABILITY: MODE 6.

with the water level < 23 ft above the top of the reactor vessel flange

ACTION:

A.3

ACTION B

a. With less than one residual heat removal loop in operation, excep as provided in b. below, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System.* Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

L.1

L.2

Add proposed Required Action B.2

See ITS 3.9.4

b. The residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

M.1

c. ~~The provisions of Specification 3.0.3 are not applicable~~

A.4

SURVEILLANCE REQUIREMENTS

SR 3.9.5.1

4.9.8.1 A residual heat removal loop shall be determined to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2000 gpm at least once per 24 hours.

12

M.2

L.1

* For purposes of this specification, addition of water from the RWST does not constitute a dilution activity provided the boron concentration in the RWST is greater than or equal to the minimum required by specification 3.1.2.7.b.2.

ITS

A.1

REFUELING OPERATIONS

LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

LCO 3.9.5

3.9.8.2 Two independent Residual Heat Removal (RHR) loops shall be OPERABLE.

A.5

Add proposed LCO Note 2

L.3

APPLICABILITY: MODE 6 when the water level above the top of the reactor pressure vessel flange is less than 23 feet.

ACTION A

ACTION:

a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.

A.6

Add proposed Required Action A.2

b. The provisions of Specification 3.0.3 are not applicable.

A.4

SURVEILLANCE REQUIREMENTS

4.9.8.2 The required Residual Heat Removal loops shall be determined OPERABLE per Specification 4.0.5.

L.4

Add proposed SR 3.9.5.2 and Note

M.3

The normal or emergency power source may be inoperable for each RHR loop.

A.5

D. C. COOK - UNIT 2 3/4 9-8a Amendment No. 59

DISCUSSION OF CHANGES
ITS 3.9.5, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - LOW WATER LEVEL

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.9.8.1 requires at least one residual heat removal loop to be in operation in MODE 6. ITS 3.9.5 requires two RHR loops to be OPERABLE and one RHR loop to be in operation in MODE 6 with the water level less than 23 feet above the top of the reactor vessel flange. However, ITS 3.9.4 covers the Applicability of MODE 6 with water level greater than or equal to 23 feet above the top of the reactor vessel flange. This changes the CTS by splitting the requirements associated with CTS 3.9.8.1 into two Applicabilities, one for MODE 6 with water level < 23 feet above the top of the reactor vessel flange, and one for MODE 6 with water level ≥ 23 feet above the reactor vessel flange.

The purpose of CTS 3.9.8.1 is to ensure that adequate decay heat removal capability is in operation and that the coolant is circulated in MODE 6. This change is acceptable because the requirements continue to ensure that the process variables are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. MODE 6 RHR and coolant circulation requirements are governed by ITS 3.9.4, "Residual Heat Removal (RHR) and Coolant Circulation – High Water Level," and ITS 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level." The combination of ITS 3.9.4 and ITS 3.9.5 ensures that the appropriate RHR loops are available in MODE 6 regardless of the water level. This change is designated as administrative because it does not result in technical changes to the CTS.

A.3 CTS 3.9.8.1 Action a states, in part, that with less than one RHR loop in operation, suspend all operations involving an increase in the reactor decay heat load of the Reactor Coolant System. ITS 3.9.5 does not include this requirement. This changes the CTS by eliminating the requirement to suspend operations involving an increase in reactor decay heat load.

This change is acceptable because the requirements have not changed. The reactor decay heat load is generated only by irradiated fuel. The only method of increasing the decay head load of a reactor in MODE 6 is to load additional irradiated fuel assemblies into the core. However, ITS LCO 3.9.6 prohibits loading of fuel assemblies into the reactor when the water level is less than 23 feet over the top of the reactor vessel flange. Therefore, when LCO 3.9.5 is applicable there is no method available to increase the reactor decay heat load, and the requirement can be deleted with no effect on plant operations. This change is designated as administrative because it does not result in technical changes to the CTS.

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DISCUSSION OF CHANGES
ITS 3.9.5, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - LOW WATER LEVEL

A.4 CTS 3.9.8.1 Action c and CTS 3.9.8.2 Action c state, "The provisions of Specification 3.0.3 are not applicable." ITS 3.9.5 does not include this statement. This changes CTS by deleting the Specification 3.0.3 exception.

This change is acceptable because the technical requirements have not changed. ITS LCO 3.0.3 is not applicable in MODE 6. Therefore, the CTS LCO 3.0.3 exception is not needed. This change is designated as administrative because it does not result in a technical change to the CTS.

A.5 CTS LCO 3.9.8.2 is modified by footnote *, which states that the normal or emergency power source may be inoperable for each RHR loop. ITS 3.9.5 does not include this statement. This changes the CTS by deleting an allowance already provided in a different portion of the ITS.

This change is acceptable because the ITS definition of OPERABLE contains the necessary requirements for a component to perform its safety function. The ITS definition of OPERABLE states that a component is OPERABLE if either the normal or emergency power source is OPERABLE. This change is designated as administrative because it does not result in technical changes to the CTS.

A.6 CTS 3.9.8.2 Action a states that with less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible. ITS 3.9.5 ACTION A includes the same requirement, but also includes an allowance (Required Action A.2) to immediately initiate action to establish $\geq$ 23 feet of water above the top of reactor vessel flange. This changes the CTS by providing the option to exit the Applicability of the LCO.

This change is acceptable because the requirements have not changed. Exiting the Applicability of LCO is always an option to exit an ACTION. Therefore, stating this option explicitly does not change the requirements of the Specification. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M.1 The CTS 3.9.8.1 Actions do not include an action to immediately initiate action to restore one RHR loop to operation in the event the RHR loop requirements are not met. ITS 3.9.5 Required Action B.2 requires that action be immediately initiated to restore one RHR loop to operation. This changes the CTS by requiring that action be taken immediately to restore one RHR loop to operation.

The purpose of CTS 3.9.8.1 is to ensure that adequate decay heat removal and coolant circulation are available in MODE 6. Although decay heat is removed from the Reactor Coolant System via natural circulation to the bulk of water contained in the refueling canal, this method of heat transfer can continue for only a discrete amount of time before boiling would occur. This change is acceptable because it requires that action be initiated to restore one RHR loop to operation in order to restore forced coolant flow and heat removal. This change

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is designated as more restrictive because additional actions will be required in the ITS than are required in the CTS.

M.2 CTS 4.9.8.1 requires that a residual heat removal loop shall be determined to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2000 gpm at least once per 24 hours. ITS SR 3.9.5.1 requires the same verification every 12 hours. This changes the CTS by requiring that RHR loop operation and reactor coolant flow rate be verified every 12 hours instead of every 24 hours.

The purpose of CTS 4.9.8.1 is to ensure that adequate decay heat removal and coolant circulation are available in MODE 6. This change is acceptable since it results in an increased Frequency of performance. The 12 hour Frequency is consistent with similar CTS Surveillances in MODES 4 and 5, and with similar SRs in the ITS. This change is designated as more restrictive because the Surveillance will be performed at an increased Frequency in the ITS.

M.3 CTS 3.9.8.2 requires two independent RHR loops to be OPERABLE and CTS 3.9.8.1 requires at least one RHR loop to be in operation. ITS SR 3.9.5.2 requires verification every seven days of correct breaker alignment and that indicated power is available to the required RHR pump not in operation. A Note states that the Surveillance Requirement is not required to be performed until 24 hours after a required RHR pump is not in operation. This changes the CTS by adding a Surveillance Requirement.

The purpose of ITS 3.9.5 is to require one RHR loop to be in operation and one RHR loop to be held in readiness should it be needed. This change is acceptable because it verifies that the RHR loop that is in standby will be ready should it be needed. This change is designated as more restrictive because it adds a new Surveillance Requirement to the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 – Relaxation of Required Action)* CTS 3.9.8.1 Action a states, in part, that with less than one RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System. This CTS Action is modified by a footnote which states that addition of water from the RWST does not constitute a dilution activity provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2 (i.e.,

2400 ppm). ITS 3.9.5 Required Action B.1 states that with no RHR loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1, "Boron Concentration." ITS 3.9.1 requires boron concentration to be within limit. This changes the CTS by allowing coolant with boron concentration less than the RCS boron concentration, but greater than the boron concentration limit in ITS LCO 3.9.1, to be added to the RCS from sources other than the RWST when the RHR loops are not in operation.

The purpose of CTS 3.9.8.1 Action a is to ensure that the required SHUTDOWN MARGIN is maintained during periods when the RHR requirements are not met. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABILITY status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of an accident occurring during the repair period. The Required Actions ensure that the RCS boron concentration is maintained within the limits of ITS LCO 3.9.1, which is sufficient to ensure that adequate SHUTDOWN MARGIN is maintained. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.2 *(Category 4 – Relaxation of Required Action)* CTS 3.9.8.1 Action a states, in part, that with less than one RHR loop in operation, close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours. ITS 3.9.5 Required Actions B.3, B.4, and B.5 state that with no RHR loop in operation, within 4 hours close and secure the equipment hatch with at least four bolts, close one door in each air lock, and verify each penetration providing direct access from the containment atmosphere to the outside atmosphere is either closed with a manual or automatic isolation valve, blind flange, or equivalent, or is capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System. This changes the CTS Actions by allowing penetrations capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System to remain open when no RHR loop is in operation.

The purpose of CTS 3.9.8.1 Action a is to ensure that radioactive material does not escape the containment should the RHR requirements continue to not be met and boiling occurs in the core. Therefore, containment penetrations are closed to seal the containment. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABILITY status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a DBA

occurring during the repair period. The Required Actions are consistent with the actions taken for containment closure in CTS 3.9.4 and ITS 3.9.3. Penetrations which can be closed by an OPERABLE Containment Purge Supply and Exhaust System do not need to be closed if RHR is inoperable, since the presence of radioactivity in the containment will cause the valves to close automatically, thus performing the isolation function. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.3 *(Category 1 – Relaxation of LCO Requirements*) ITS 3.9.5 is modified by two LCO Notes. Note 1 allows all RHR pumps to be removed from operation for ≤ 15 minutes when switching from one loop to another, provided several conditions are met. Note 2 allows one required RHR loop to be inoperable for up to 2 hours for Surveillance testing, provided that the other loop is OPERABLE and in operation. Neither CTS 3.9.8.1 nor CTS 3.9.8.2 contain these allowances. This changes the CTS by allowing the LCO to not be met under certain situations.

The purpose of CTS 3.9.8.1 and CTS 3.9.8.2 is to ensure sufficient decay heat removal is available in the specified MODES and conditions. This change is acceptable because the LCO requirements continue to ensure that the structures, systems, and components are maintained consistent with the safety analyses and licensing basis. The ITS Notes allow normal operational evolutions, such as pump swapping and surveillance testing, to be performed while in the Applicability of the Specification. These evolutions are necessary to demonstrate RHR OPERABILITY. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L.4 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.9.8.2 requires verification that each RHR loop is OPERABLE per Specification 4.0.5. ITS 3.9.5 does not contain this Surveillance. This changes the CTS by deleting this specific Surveillance.

The purpose of CTS Specification 4.0.5 is to require inservice testing in accordance with 10 CFR 50.55a. The purpose of inservice testing of RHR is to detect gross degradation caused by impeller structural damage or other hydraulic component problems. This change is acceptable because the deleted Surveillance Requirement is not necessary to verify that the equipment used to meet the LCO can perform its required functions. Thus, appropriate equipment continues to be tested in a manner and at a Frequency necessary to give confidence that the equipment can perform its assumed function. This Technical Specification will no longer tie RHR loop OPERABILITY to the Inservice Testing Program. This change is acceptable because it is not necessary to perform inservice testing of an RHR loop to determine if it is OPERABLE, as the system is routinely operated and the RHR loops are instrumented so that degradation can be observed. Significant degradation of the RHR System would be indicated by the RHR System flow and temperature instrumentation in the Control Room. This change is designated as less restrictive because Surveillances which are required in the CTS will not be required in the ITS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.9 REFUELING OPERATIONS

3.9.6 Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level

3.9.8.1, 3.9.8.2

LCO 3.9.6 Two RHR loops shall be OPERABLE, and one RHR loop shall be in operation.

removed from operation

TSTF-438

- NOTES -

1. All RHR pumps may be de-energized for ≤ 15 minutes when switching from one train to another provided:

   Doc L.3

   a. The core outlet temperature is maintained ≥ 10 degrees F below saturation temperature.

   at least

   b. No operations are permitted that would cause a reduction of the Reactor Coolant System boron concentration and

   c. No draining operations to further reduce RCS water volume are permitted.

2. One required RHR loop may be inoperable for up to 2 hours for surveillance testing, provided that the other RHR loop is OPERABLE and in operation.

APPLICABILITY: MODE 6 with the water level < 23 ft above the top of reactor vessel flange.

ACTIONS

3.9.8.2 Action a

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Less than the required number of RHR loops OPERABLE.	A.1	Initiate action to restore required RHR loops to OPERABLE status.	Immediately
	OR		
	A.2	Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
3.9.8.1 Action a B. No RHR loop in operation.	B.1	Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1, "Boron Concentration."	Immediately
	AND		
	B.2	Initiate action to restore one RHR loop to operation.	Immediately
	AND		
	B.3	Close equipment hatch and secure with four bolts.	4 hours
	AND		
	B.4	Close one door in each air lock.	4 hours
	AND		
	B.5	Verify Close each penetration providing direct access from the containment atmosphere to the outside atmosphere is either closed with a manual or automatic isolation valve, blind flange, or equivalent, or	4 hours
	OR	Move from next page	

1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
3.9.8.1 Action a	B.5.2 Verify each penetration is capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.	4 hours
Move to B.5		Supply 8

7

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
4.9.8.1	SR 3.9.~~6~~ 5.1 Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ ~~1280~~ 2000 gpm.	12 hours
Doc M.3	SR 3.9.~~6~~ 5.2 Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	7 days

1 3 1

INSERT 1

4

4

INSERT 1

-NOTE-

Not required to be performed until 24 hours after a required RHR pump is not in operation.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.9.5, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - LOW WATER LEVEL

1. CNP has analyzed a boron dilution event in MODE 6. Therefore, ISTS 3.9.2 is not included in the ITS and ISTS 3.9.6 is renumbered as ITS 3.9.5.

2. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

3. The brackets are removed and the proper plant specific information/value is provided.

4. TSTF-265 was previously approved and incorporated in NUREG-1431, Rev. 2, in similar SRs (e.g., ISTS SRs 3.4.5.3, 3.4.6.3, 3.4.7.3, and 3.4.8.2). Consistent with TSTF-265, a Note is added to ISTS SR 3.9.6.2 that permits the performance of the SR to verify correct breaker alignment and power availability to be delayed until 24 hours after a required pump is not in operation. This provision is required because when pumps are swapped under the current requirements, the Surveillance is immediately not met on the pump taken out of operation. This change avoids entering an Action for a routine operational occurrence. The change is acceptable because adequate assurance exists that the pump is aligned to the correct breaker with power available because, prior to being removed from operation, the applicable pump had been in operation. Allowing 24 hours to perform the breaker alignment verification is acceptable because the pump was in operation, which demonstrated OPERABILITY, and because 24 hours is currently allowed by invoking SR 3.0.3. This is a new Surveillance Requirement not required in CTS 3.9.8.2.

5. Editorial change made to be consistent with the LCO statement.

6. Editorial change made to be consistent with the format of the ITS.

7. ISTS 3.9.6 Required Actions B.5.1 and B.5.2 are connected by an "<u>OR</u>" logical connector, such that either one can be performed to meet the requirements of the ACTION. However, the two Required Actions are applicable to all the penetrations; either Required Action B.5.1 or Required Action B.5.2 must be performed for all the penetrations. Thus, this will not allow one penetration to be isolated by use of a manual valve and another penetration to be capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System. This is not the intent of the requirement. The requirement is based on ISTS LCO 3.9.4 (ITS LCO 3.9.3), which requires each penetration to be either: a) closed by a manual or automatic isolation valve, blind flange, or equivalent; or b) capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System. For consistency with the actual LCO requirement, ISTS 3.9.6 Required Actions B.5.1 and B.5.2 have been combined into a single Required Action in ITS 3.9.5 Required Action B.5.

8. Changes have been made to be consistent with changes made in another Specification and be consistent with plant specific nomenclature.

9. The limit has been changed to be consistent with the same limit provided in Notes to ISTS 3.4.6 and ISTS 3.4.7.

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Improved Standard Technical Specifications (ISTS) Bases Markup
and Justification for Deviations (JFDs)

B 3.9 REFUELING OPERATIONS

B 3.9.6 Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level

BASES

BACKGROUND	The purpose of the RHR System in MODE 6 is to remove decay heat and sensible heat from the Reactor Coolant System (RCS), as required by GDC 34, to provide mixing of borated coolant, and to prevent boron stratification (Ref. 1). Heat is removed from the RCS by circulating reactor coolant through the RHR heat exchangers where the heat is transferred to the Component Cooling Water System. The coolant is then returned to the RCS via the RCS cold leg(s). Operation of the RHR System for normal cooldown decay heat removal is manually accomplished from the control room. The heat removal rate is adjusted by controlling the flow of reactor coolant through the RHR heat exchanger(s) and the bypass lines. Mixing of the reactor coolant is maintained by this continuous circulation of reactor coolant through the RHR System.
INSERT 1	
APPLICABLE SAFETY ANALYSES	If the reactor coolant temperature is not maintained below 200°F, boiling of the reactor coolant could result. This could lead to a loss of coolant in the reactor vessel. Additionally, boiling of the reactor coolant could lead to a reduction in boron concentration in the coolant due to the boron plating out on components near the areas of the boiling activity. The loss of reactor coolant and the reduction of boron concentration in the reactor coolant will eventually challenge the integrity of the fuel cladding, which is a fission product barrier. Two trains of the RHR System are required to be OPERABLE, and one train in operation, in order to prevent this challenge. (loop) (loops) The RHR System satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).
LCO	In MODE 6, with the water level < 23 ft above the top of the reactor vessel flange, both RHR loops must be OPERABLE. Additionally, one loop of RHR must be in operation in order to provide: a. Removal of decay heat; b. Mixing of borated coolant to minimize the possibility of criticality; and c. Indication of reactor coolant temperature. This LCO is modified by a Note that permits the RHR pumps to be de-energized for ≤ 15 minutes when switching from one train to another.
removed from operation	

TSTF-438

5 **INSERT 1**

, as well as adjustments in Component Cooling Water System temperature and flow

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BASES

LCO (continued)

The circumstances for stopping both RHR pumps are to be limited to situations when the outage time is short and the core outlet temperature is maintained > 10 degrees F below saturation temperature. The Note prohibits boron dilution or draining operations when RHR forced flow is stopped.

This LCO is modified by a Note that allows one RHR loop to be inoperable for a period of 2 hours provided the other loop is OPERABLE and in operation. Prior to declaring the loop inoperable, consideration should be given to the existing plant configuration. This consideration should include that the core time to boil is short, there is no draining operation to further reduce RCS water level and that the capability exists to inject borated water into the reactor vessel. This permits surveillance tests to be performed on the inoperable loop during a time when these tests are safe and possible.

An OPERABLE RHR loop consists of an RHR pump, a heat exchanger, valves, piping, instruments and controls to ensure an OPERABLE flow path and to determine the low end temperature. The flow path starts in one of the RCS hot legs and is returned to the RCS cold legs.

APPLICABILITY

Two RHR loops are required to be OPERABLE, and one RHR loop must be in operation in MODE 6, with the water level < 23 ft above the top of the reactor vessel flange, to provide decay heat removal. Requirements for the RHR System in other MODES are covered by LCOs in Section 3.4, Reactor Coolant System (RCS), and Section 3.5, Emergency Core Cooling Systems (ECCS). RHR loop requirements in MODE 6 with the water level ≥ 23 ft are located in LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation - High Water Level."

ACTIONS

A.1 and A.2

If less than the required number of RHR loops are OPERABLE, action shall be immediately initiated and continued until the RHR loop is restored to OPERABLE status and to operation or until ≥ 23 ft of water level is established above the reactor vessel flange. When the water level is ≥ 23 ft above the reactor vessel flange, the Applicability changes to that of LCO 3.9.5, and only one RHR loop is required to be OPERABLE and in operation. An immediate Completion Time is necessary for an operator to initiate corrective actions.

BASES

ACTIONS (continued)

B.1

If no RHR loop is in operation, there will be no forced circulation to provide mixing to establish uniform boron concentrations. Suspending positive reactivity additions that could result in failure to meet the minimum boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that what would be required in the RCS for minimum refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation.

B.2

If no RHR loop is in operation, actions shall be initiated immediately, and continued, to restore one RHR loop to operation. Since the unit is in Conditions A and B concurrently, the restoration of two OPERABLE RHR loops and one operating RHR loop should be accomplished expeditiously.

B.3, B.4, B.5.1 and B.5.2

If no RHR is in operation, the following actions must be taken:

a. The equipment hatch must be closed and secured with four bolts;

b. One door in each air lock must be closed; and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere must be either closed by a manual or automatic isolation valve, blind flange, or equivalent, or verified to be capable of being closed by an OPERABLE Containment Purge and Exhaust Isolation System.

With RHR loop requirements not met, the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. Performing the actions stated above ensures that all containment penetrations are either closed or can be closed so that the dose limits are not exceeded.

The Completion Time of 4 hours allows fixing of most RHR problems and is reasonable, based on the low probability of the coolant boiling in that time.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.~~6~~5.1 1

This Surveillance demonstrates that one RHR loop is in operation and circulating reactor coolant. The flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability and to prevent thermal and boron stratification in the core. In addition, during operation of the RHR loop with the water level in the vicinity of the reactor vessel nozzles, the RHR pump suction requirements must be met. The Frequency of 12 hours is sufficient, considering the flow, temperature, pump control, and alarm indications available to the operator for monitoring the RHR System in the control room. 8

SR 3.9.5.2

Verification that the required pump is OPERABLE ensures that an additional RCS or RHR pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power available to the required pump. The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience. 9

REFERENCES

1. U FSAR, Section ~~15.5.7~~ 9.3.2 5 4

INSERT 2 1

1 **INSERT 2**

This SR is modified by a Note that states the SR is not required to be performed until 24 hours after a required pump is not in operation.

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.5 BASES, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - LOW WATER LEVEL

1. Changes are made to reflect those changes made to the ISTS. Subsequent requirements are renumbered or revised, where applicable, to reflect the changes.

2. CNP Units 1 and 2 were designed and under construction prior to the promulgation of 10 CFR 50, Appendix A. CNP Units 1 and 2 were designed and constructed to meet the intent of the proposed General Design Criteria, published in 1967. However, the CNP UFSAR contains discussions of the Plant Specific Design Criteria (PSDCs) used in the design of CNP Units 1 and 2. Bases references to the 10 CFR 50, Appendix A, criteria have been replaced with references to the appropriate section of the UFSAR.

3. The current wording implies specific restrictions not contained in LCO Note 2. Therefore, the words have been modified to provide guidance on what should be considered in determining whether or not to use the Note allowance.

4. The brackets have been removed and the proper plant specific information/value has been provided.

5. Changes are made (additions, deletions, and/or changes) to the ISTS Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

6. The wording has been modified, as Section 3.5 does not provide requirements for the RHR Shutdown Cooling function.

7. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

8. Typographical/grammatical error corrected.

9. Changes are made to be consistent with the ISTS.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.5, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION – LOW WATER LEVEL

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 6

ITS 3.9.6, Refueling Cavity Water Level

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A.1

REFUELING OPERATIONS

3/4.9.10 WATER LEVEL - REACTOR VESSEL

LIMITING CONDITION FOR OPERATION

L.1

LCO 3.9.6

3.9.10 At least 23 feet of water shall be maintained over the top of the reactor pressure vessel flange.

L.2

irradiated

APPLICABILITY: During movement of fuel assemblies or control rods within the reactor pressure vessel while in MODE 6.

A.2

M.1

ACTION:

irradiated

ACTION A

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel assemblies or control rods within the pressure vessel. The provisions of Specification 3.0.3 are not applicable.

L.1

L.2

A.3

M.1

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1

4.9.10 The water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and at least once per 24 hours thereafter during movement of fuel assemblies or control rods.

L.3

L.2

ITS

A.1

REFUELING OPERATIONS

3/4.9.10 WATER LEVEL - REACTOR VESSEL

LIMITING CONDITION FOR OPERATION

LCO 3.9.6

3.9.10 At least 23 feet of water shall be maintained over the top of the reactor pressure vessel flange.

irradiated

APPLICABILITY: During movement of fuel assemblies or control rods within the reactor pressure vessel while in MODE 6.

ACTION:

ACTION A

irradiated

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel assemblies or control rods within the pressure vessel. The provisions of Specification 3.0.3 are not applicable.

L.1 L.2 A.2 M.1 L.1 L.2 A.3 M.1

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1

4.9.10 The water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and at least once per 24 hours thereafter during movement of fuel assemblies or control rods.

L.3 L.2

DISCUSSION OF CHANGES
ITS 3.9.6, REFUELING CAVITY WATER LEVEL

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.9.10 is applicable in MODE 6 during movement of fuel assemblies or control rods within the reactor pressure vessel. ITS 3.9.6 is applicable during movement of irradiated fuel assemblies within containment. This changes the CTS by eliminating the "MODE 6" portion of the Applicability. The change to "irradiated fuel assemblies" from "fuel assemblies" is discussed in DOC L.1. The change from within "the reactor pressure vessel" to within "containment" is discussed in DOC M.1. The change eliminating control rods is discussed in DOC L.2.

This change is acceptable because the technical requirements have not changed. Fuel movement in the containment only occurs in MODE 6. Therefore, specifying MODE 6 during movement of fuel is unnecessary. This change is designated as administrative because the technical requirements of the CTS have not changed.

A.3 The CTS 3.9.10 Action states "The provisions of Specification 3.0.3 are not applicable." ITS 3.9.6 does not include this statement. This changes the CTS by deleting the Specification 3.0.3 exception.

This change is acceptable because the technical requirements have not changed. ITS LCO 3.0.3 is not applicable in MODE 6. Therefore, the CTS LCO 3.0.3 exception is not needed. This change is designated as administrative because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS 3.9.10 is applicable during movement of fuel assemblies or control rods within the "reactor pressure vessel" while in MODE 6. The CTS 3.9.10 Action states that with the reactor vessel water level not within limit, suspend movement of fuel assemblies or control rods within the "pressure vessel." The ITS 3.9.6 Applicability is during movement of irradiated fuel assemblies within "containment." ITS 3.9.6 ACTION A states that with the refueling cavity water level not within limit, suspend movement of irradiated fuel assemblies within "containment." This changes the CTS by expanding the suspension of movement of fuel assemblies from within the "reactor pressure vessel" to within the "containment." The change to "irradiated fuel assemblies" from "fuel assemblies" is discussed in DOC L.1. The change eliminating MODE 6 is discussed in DOC A.2. The change eliminating control rods is discussed in DOC L.2.

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DISCUSSION OF CHANGES
ITS 3.9.6, REFUELING CAVITY WATER LEVEL

The purpose of CTS 3.9.10 is to ensure the refueling cavity water level is greater than or equal to that assumed in the fuel handling accident analysis. This change is acceptable because the fuel handling accident analysis assumes an irradiated fuel assembly is damaged within the containment, not only within the reactor vessel. In order to protect the initial assumptions of the fuel handling accident analysis, prohibition of irradiated fuel movement within the containment is required. This change is designated as more restrictive because it will prohibit operations that are not prohibited in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L.1 *(Category 2 – Relaxation of Applicability)* CTS 3.9.10 states that at least 23 feet of water must be maintained over the reactor pressure vessel flange in MODE 6 during movement of fuel assemblies or control rods within the reactor pressure vessel. The CTS 3.9.10 Action requires suspension of movement of fuel assemblies or control rods within the pressure vessel if the water level requirement is not met. ITS 3.9.6 states the refueling cavity water level shall be maintained $\geq$ 23 feet above the top of the reactor vessel flange during movement of irradiated fuel assemblies within containment. ITS 3.9.6 Required Action A.1 requires the suspension of movement of irradiated fuel assemblies within containment. This changes the CTS restricting the Applicability and ACTIONS from movement of any "fuel assemblies" within the reactor pressure vessel to movement of "irradiated fuel assemblies" within containment. The change eliminating MODE 6 is discussed in DOC A.2. The change from within "the reactor pressure vessel" to within "containment" is discussed in DOC M.1. The change eliminating control rods is discussed in DOC L.2.

The purpose of CTS 3.9.10 is to ensure that the refueling cavity water level is greater than or equal to that assumed in the fuel handling accident analysis. This change is acceptable because the requirements continue to ensure that the process variables are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. The fuel handling accident analysis is based on damaging a single irradiated fuel assembly. An unirradiated fuel assembly does not contain the radioactive materials generated by fission and does not result in significant offsite doses if damaged. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L.2 *(Category 2 – Relaxation of Applicability)* CTS 3.9.10 requires the refueling cavity water level to be maintained at least 23 feet over the top of the reactor

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pressure vessel flange during movement of fuel assemblies or control rods within the reactor pressure vessel while in MODE 6. The CTS 3.9.10 Action requires suspension of all operations involving movement of the fuel assemblies or control rods within the pressure vessel in the event the LCO is not met. CTS 4.9.10 requires a determination of the refueling canal water level during the movement of fuel assemblies or control rods. ITS 3.9.6 requires the refueling cavity water level to be maintained greater than or equal to 23 feet above the top of the reactor vessel flange during movement of irradiated fuel assemblies within containment. This changes the CTS by deleting the requirement that the LCO, ACTIONS, and Surveillance is applicable during control rod movement. The change to "irradiated fuel assemblies" from "fuel assemblies" is discussed in DOC L.1. The change eliminating MODE 6 is discussed in DOC A.2. The change from within "the reactor pressure vessel" to within "containment" is discussed in DOC M.1.

The purpose of CTS 3.9.10 is to ensure that the refueling cavity water level is greater than or equal to that assumed in the fuel handling accident analysis. This change is acceptable because the requirements continue to ensure that the process variables are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. The fuel handling accident is based on damaging a single irradiated fuel assembly. Movement of control rods is not assumed to result in a fuel handling accident. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L.3 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS 4.9.10 requires the refueling cavity water level to be determined to be within limit "within 2 hours prior to the start of" and at least once per 24 hours thereafter during movement of fuel assemblies or control rods. ITS SR 3.9.6.1 requires verification that the refueling cavity water level is within limit every 24 hours. This changes the CTS by reducing the Frequency for verifying refueling cavity water level from 2 hours before entering the Applicability of the LCO to 24 hours before entering the Applicability of the LCO.

The purpose of CTS 4.9.10 is to ensure that the refueling cavity water level is greater than or equal to that assumed in the fuel handling accident analysis. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. The Frequency of 24 hours is sufficient during the movement of fuel assemblies, therefore it is sufficient before fuel assemblies are moved. ITS SR 3.0.1 requires the SR to be met during the MODES or other specified conditions in the Applicability. Therefore, the water level must be met when fuel assemblies are moved or fuel assembly movement must be suspended immediately (thereby exiting the Applicability of the Specification). Therefore, changing the Frequency from 2 hours before moving fuel assemblies to within 24 hours before moving fuel assemblies has no effect on plant safety. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

1

3.9 REFUELING OPERATIONS

1

3.9.7 Refueling Cavity Water Level

6

3.9.10 LCO 3.9.7 Refueling cavity water level shall be maintained ≥ 23 ft above the top of reactor vessel flange. 1

APPLICABILITY: During movement of irradiated fuel assemblies within containment.

ACTIONS

Action

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refueling cavity water level not within limit.	A.1 Suspend movement of irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

4.9.10

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify refueling cavity water level is ≥ 23 ft above the top of reactor vessel flange.	24 hours

1

6

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JUSTIFICATION FOR DEVIATIONS
ITS 3.9.6, REFUELING CAVITY WATER LEVEL

1. CNP has analyzed a boron dilution event in MODE 6. Therefore, ISTS 3.9.2 is not included in the ITS and ISTS 3.9.7 is renumbered as ITS 3.9.6.

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Improved Standard Technical Specifications (ISTS) Bases Markup
and Justification for Deviations (JFDs)

B 3.9 REFUELING OPERATIONS

B 3.9.7 Refueling Cavity Water Level

BASES

BACKGROUND	The movement of irradiated fuel assemblies within containment requires a minimum water level of 23 ft above the top of the reactor vessel flange. During refueling, this maintains sufficient water level in the containment, refueling canal, fuel transfer canal, refueling cavity, and spent fuel pool. Sufficient water is necessary to retain iodine fission product activity in the water in the event of a fuel handling accident (Refs. 1 and 2). Sufficient iodine activity would be retained to limit offsite doses from the accident to ≤ 25% of 10 CFR 100 limits, as provided by the guidance of Reference 3.
APPLICABLE SAFETY ANALYSES	During movement of irradiated fuel assemblies, the water level in the refueling canal and the refueling cavity is an initial condition design parameter in the analysis of a fuel handling accident in containment, as postulated by Regulatory Guide 1.25 (Ref. 1). A minimum water level of 23 ft (Regulatory Position C.1.c of Ref. 1) allows a decontamination factor of 100 (Regulatory Position C.1.g of Ref. 1) to be used in the accident analysis for iodine. This relates to the assumption that 99% of the total iodine released from the pellet to cladding gap of all the dropped fuel assembly rods is retained by the refueling cavity water. The fuel pellet to cladding gap is assumed to contain 10% of the total fuel rod iodine inventory (Ref. 1). The fuel handling accident analysis inside containment is described in Reference 2. With a minimum water level of 23 ft and a minimum decay time of 1 hours prior to fuel handling, the analysis and test programs demonstrate that the iodine release due to a postulated fuel handling accident is adequately captured by the water and offsite doses are maintained within allowable limits (Refs. 4 and 5). Refueling cavity water level satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).
LCO	A minimum refueling cavity water level of 23 ft above the reactor vessel flange is required to ensure that the radiological consequences of a postulated fuel handling accident inside containment are within acceptable limits, as provided by the guidance of Reference 3.

BASES

APPLICABILITY

LCO 3.9.7 is applicable when moving irradiated fuel assemblies within containment. The LCO minimizes the possibility of a fuel handling accident in containment that is beyond the assumptions of the safety analysis. If irradiated fuel assemblies are not present in containment, there can be no significant radioactivity release as a result of a postulated fuel handling accident. Requirements for fuel handling accidents in the spent fuel pool are covered by LCO 3.7.15, "Fuel Storage Pool Water Level."

ACTIONS

A.1

With a water level of < 23 ft above the top of the reactor vessel flange, all operations involving movement of irradiated fuel assemblies within the containment shall be suspended immediately to ensure that a fuel handling accident cannot occur.

The suspension of fuel movement shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.7.1

Verification of a minimum water level of 23 ft above the top of the reactor vessel flange ensures that the design basis for the analysis of the postulated fuel handling accident during refueling operations is met. Water at the required level above the top of the reactor vessel flange limits the consequences of damaged fuel rods that are postulated to result from a fuel handling accident inside containment (Ref. 2).

The Frequency of 24 hours is based on engineering judgment and is considered adequate in view of the large volume of water and the normal procedural controls of valve positions, which make significant unplanned level changes unlikely.

REFERENCES

1. Regulatory Guide 1.25, March 23, 1972.
2. UFSAR, Section 15.4.5
3. NUREG-0800, Section 15.7.4.
4. 10 CFR 100.10.

BASES

REFERENCES (continued)

5. Malinowski, D. D., Bell, M. J., Duhn, E., and Locante, J., WCAP-7828, Radiological Consequences of a Fuel Handling Accident, December 1971.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.9.6 BASES, REFUELING CAVITY WATER LEVEL

1. Changes are made to reflect those changes made to the ISTS. Subsequent requirements are renumbered or revised, where applicable, to reflect the changes.

2. Changes are made (additions, deletions, and/or changes) to the ISTS Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

3. The brackets have been removed and the proper plant specific information/value has been provided.

4. Typographical/grammatical error corrected.

5. Changes are made to be consistent with the ISTS.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.6, REFUELING CAVITY WATER LEVEL

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 7

Relocated/Deleted Current Technical Specifications (CTS)

CTS 3/4.9.3, Decay Time

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

LA.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.9 *REFUELING OPERATIONS*

DECAY TIME

LIMITING CONDITION FOR OPERATION

3.9.3 The reactor shall be subcritical for at least:

a. 100 hours

b. 148 hours

APPLICABILITY: Specification 3.9.3.a - From September 15 through June 15, during movement of irradiated fuel in the reactor pressure vessel

Specification 3.9.3.b - From June 16 through September 14, during movement of irradiated fuel in the reactor pressure vessel

ACTION:

With the reactor subcritical for less than the required time, suspend all operations involving movement of irradiated fuel in the reactor pressure vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.3 The reactor shall be determined to have been subcritical as required by verification of the date and time of subcriticality prior to movement of irradiated fuel in the reactor pressure vessel.

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LA.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.9 REFUELING OPERATIONS

DECAY TIME

LIMITING CONDITION FOR OPERATION

3.9.3 The reactor shall be subcritical for at least:

a. 100 hours

b. 148 hours

APPLICABILITY: Specification 3.9.3.a - From September 15 through June 15, during movement of irradiated fuel in the reactor pressure vessel.

Specification 3.9.3.b - From June 16 through September 14, during movement of irradiated fuel in the reactor pressure vessel

ACTION:

With the reactor subcritical for less than the required time, suspend all operations involving movement of irradiated fuel in the reactor pressure vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.3 The reactor shall be determined to have been subcritical as required by verification of the date and time of *subcriticality prior to movement of irradiated fuel in the reactor pressure vessel.*

DISCUSSION OF CHANGES
CTS 3/4.9.3, DECAY TIME

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Category 6 – Relocation of LCO or SR to the TRM)* CTS LCO 3.9.3 requires the reactor to be subcritical for a required period of time (100 hours from September 15 through June 15 and 148 hours from June 16 through September 14) prior to movement of irradiated fuel in the reactor pressure vessel. ITS 3.9 does not include the requirements for decay time. This changes the CTS by moving the explicit decay time requirements from the Technical Specifications to the Technical Requirements Manual (TRM).

The removal of these details from the Technical Specifications is acceptable because this type of information is not necessary to provide adequate protection of public health and safety. The purpose of CTS LCO 3.9.3 to ensure that sufficient time has elapsed to allow the radioactive decay of the short-lived fission products in the irradiated fuel consistent with the assumptions used in the fuel handling accident analysis. Additionally, two time limits are currently provided to account for decay heat load capacity of the spent fuel storage pool. Although CTS LCO 3.9.3 satisfies Criterion 2 of the Technical Specifications Selection Criteria in 10 CFR 50.36 (c)(2)(ii) (for the radioactive decay assumptions in the fuel handling accident), the requirements for decay time following subcriticality will always be met for a refueling outage because of the operations required prior to moving irradiated fuel in the reactor vessel (e.g., containment entry, removal of vessel head, removal of vessel internals, etc.). Also, this change is acceptable because the removed information will be adequately controlled in the TRM. The TRM is incorporated by reference into the UFSAR and any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because a requirement is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.9.3, DECAY TIME

There are no specific NSHC discussions for this Specification.

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CTS 3/4.9.5, Communications

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

R.1

REFUELING OPERATIONS

COMMUNICATIONS

LIMITING CONDITION FOR OPERATION

3.9.5 Direct communications shall be maintained between the control room and personnel at the refueling station.

APPLICABILITY: During CORE ALTERATIONS.

ACTION:

When direct communications between the control room and personnel at the refueling station cannot be maintained, suspend all CORE ALTERATIONS. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.5 Direct communications between the control room and personnel at the refueling station shall be demonstrated within one hour prior to the start of and at least once per 12 hours during CORE ALTERATIONS.

R.1

REFUELING OPERATIONS

COMMUNICATIONS

LIMITING CONDITION FOR OPERATION

3.9.5 Direct communications shall be maintained between the control room and personnel at the refueling station.

APPLICABILITY: During CORE ALTERATIONS.

ACTION:

When direct communications between the control room and personnel at the refueling station cannot be maintained, suspend all CORE ALTERATIONS. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.5 Direct communications between the control room and personnel at the refueling station shall be demonstrated within one hour prior to the start of and at least once per 12 hours during CORE ALTERATIONS.

DISCUSSION OF CHANGES
CTS 3/4.9.5, COMMUNICATIONS

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R.1 CTS 3.9.5 states that direct communications shall be maintained between the control room and personnel at the refueling station during CORE ALTERATIONS. This ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity conditions during CORE ALTERATIONS. The prompt notification of the control room of a fuel handling accident is not an assumption in the fuel handling accident analysis. While notification is necessary to ensure that the control room is isolated to meet the control room operator dose limits in General Design Criteria 19, the fuel handling accident analysis does not take credit for direct communications between the refueling station and the control room (30 minutes is assumed before control room operator actions are taken). This LCO does not meet the criteria for retention in the ITS; therefore, it will be retained in the Technical Requirements Manual (TRM).

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. Communications are not installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. The Communications Specification does not satisfy criterion 1.

2. Communications are not a process variable, design feature, or operating restriction that is an initial condition of a DBA or Transient Analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The Communications Specification does not satisfy criterion 2.

3. Communications are part of the primary success path and are assumed in the mitigation of a DBA which assumes the failure of a fission product barrier. However, communications are not a structure, system or component. The Communications Specification does not satisfy criterion 3.

4. Communications are not a structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. As discussed in Section 4.0, (Appendix A, page A-67) and Table 1 of WCAP-11618, communications was found to be a non-significant risk contributor to core damage frequency and offsite releases. I&M has reviewed this evaluation,

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considers it applicable to CNP Units 1 and 2, and concurs with this assessment. The Communications Specification does not meet criterion 4.

Since the 10 CFR 50.36(c)(2)(ii) criteria have not been met, the communications LCO and associated Surveillances may be relocated out of the Technical Specifications. The communications specification will be relocated to the TRM. Changes to the TRM will be controlled by the provisions of 10 CFR 50.59. This change is designated as a relocation because the LCO did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and has been relocated to the TRM.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.9.5, COMMUNICATIONS

There are no specific NSHC discussions for this Specification.

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CTS 3/4.9.13, Spent Fuel Cask Movement

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

LA.1

REFUELING OPERATIONS

SPENT FUEL CASK MOVEMENT

LIMITING CONDITION FOR OPERATION

3.9.13 Movement of the spent fuel cask above elevation 620 feet shall be done with the spent fuel cask handling crane operating in the Controlled Path Mode of operation.

APPLICABILITY: With fuel assemblies in the storage pool.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.13 Crane interlocks which prevent raising the bottom of the spent fuel cask more than 6 inches above the top of the Cask Drop Protection System cyclinder and restrict the crane's movement to the Controlled Path shall be demonstrated OPERABLE within 7 days prior to crane operation in the Controlled Path Mode and at least once per 7 days thereafter during crane operation in the Controlled Path Mode.

LA.1

REFUELING OPERATIONS

SPENT FUEL CASK MOVEMENT

LIMITING CONDITION FOR OPERATION

3.9.13 Movement of the spent fuel cask above elevation 620 feet shall be done with the spent fuel cask handling crane operating in the Controlled Path Mode of operation.

APPLICABILITY: With fuel assemblies in the storage pool.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.13 Crane interlocks which prevent raising the bottom of the spent fuel cask more than 6 inches above the top of the Cask Drop Protection System cylinder and restrict the crane's movement to the Controlled Path shall be demonstrated OPERABLE within 7 days prior to crane operation in the Controlled Path Mode and at least once per 7 days thereafter during crane operation in the Controlled Path Mode.

DISCUSSION OF CHANGES
CTS 3/4.9.13, SPENT FUEL CASK MOVEMENT

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 6 – Relocation of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAPP, or IIP)* CTS LCO 3.9.13 requires the movement of the spent fuel cask above elevation 620 feet to be done with the spent fuel cask handling crane operating in the Controlled Path Mode of operation. The ITS does not include the requirements for the movement of the spent fuel cask above elevation 620 feet. This changes the CTS by moving the explicit requirements for movement of the spent fuel cask above elevation 620 feet, including the Action and Surveillance Requirement, from the Technical Specifications to the Technical Requirements Manual (TRM).

The removal of these details from the Technical Specifications is acceptable because this type of information is not necessary to provide adequate protection of public health and safety. The purpose of CTS LCO 3.9.13 to ensure that, during insertion or removal of spent fuel casks from the spent fuel pool; fuel cask movement will be constrained to the path and lift height assumed in the Cask Drop Protection System safety analysis. Restricting the spent fuel cask movement within these requirements provides protection for the spent fuel pool and stored fuel from the effects of a fuel cask drop accident. These requirements are proposed to be relocated to the TRM since the movement of loads other than fuel assemblies is controlled based on the heavy loads analysis. The bounding design basis fuel handling accident in the auxiliary building assumes a single irradiated fuel assembly is damaged. In addition, as stated in the NRC Safety Evaluation for License Amendments 197 (Unit 1) and 182 (Unit 2), dated July 12, 1995, the controls in place ensure that the potential for other, more severe events that could occur, such as a heavy load drop on irradiated fuel, need not be postulated and analyzed. This change is acceptable because the removed information will be adequately controlled in the TRM. The TRM is incorporated by reference into the UFSAR and any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because a requirement is being removed from the Technical Specifications.

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DISCUSSION OF CHANGES
CTS 3/4.9.13, SPENT FUEL CASK MOVEMENT

LESS RESTRICTIVE CHANGES

None

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.9.13, SPENT FUEL CASK MOVEMENT

There are no specific NSHC discussions for this Specification.

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CTS 3/4.9.14, Spent Fuel Cask Drop Protection System

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

LA.1

REFUELING OPERATIONS

SPENT FUEL CASK DROP PROTECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.14 The maximum weight of a spent fuel cask used with the Cask Drop Protection System shall be limited to 110 tons (nominal).

APPLICABILITY: At all times.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.14 The weight of a spent fuel cask shall be verified to be $\leq$ 110 tons (nominal) prior to its use with the Cask Drop Protection System.

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LA.1

REFUELING OPERATIONS

SPENT FUEL CASK DROP PROTECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.14 The maximum weight of a spent fuel cask used with the Cask Drop Protection System shall be limited to 110 tons (nominal).

APPLICABILITY: At all times.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.14 The weight of a spent fuel cask shall be verified to be ≤ 110 tons (nominal) prior to its use with the Cask Drop Protection System.

DISCUSSION OF CHANGES
CTS 3/4.9.14, SPENT FUEL CASK DROP PROTECTION SYSTEM

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 6 – Relocation of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAPP, or IIP)* CTS LCO 3.9.14 specifies that the maximum weight of a spent fuel cask used with the Cask Drop Protection System be limited to 110 tons (nominal). The ITS does not include this spent fuel cask weight limitation associated with the Cask Drop Protection System. This changes the CTS by moving the explicit spent fuel cask weight limitation associated with the Cask Drop Protection System, including the Action and Surveillance Requirement, from the Technical Specifications to the Technical Requirements Manual (TRM).

The removal of these details from the Technical Specifications is acceptable because this type of information is not necessary to provide adequate protection of public health and safety. The purpose of CTS LCO 3.9.14 is to ensure that limitations on the use of spent fuel casks weighing in excess of 110 tons (nominal) are in effect to provide assurance that the spent fuel pool would not be damaged by a dropped fuel cask since this weight is consistent with the assumptions used in the safety analyses for the performance of the Cask Drop Protections System. These requirements are proposed to be relocated to the TRM since the movement of loads other than fuel assemblies is controlled based on the heavy loads analysis. The bounding design basis fuel handling accident in the auxiliary building assumes a single irradiated fuel assembly is damaged. In addition, as stated in the NRC Safety Evaluation for License Amendments 197 (Unit 1) and 182 (Unit 2), dated July 12, 1995, the controls in place ensure that the potential for other, more severe events that could occur, such as a heavy load drop on irradiated fuel, need not be postulated and analyzed. This change is acceptable because the removed information will be adequately controlled in the TRM. The TRM is incorporated by reference into the UFSAR and any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because a requirement is being removed from the Technical Specifications.

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DISCUSSION OF CHANGES
CTS 3/4.9.14, SPENT FUEL CASK DROP PROTECTION SYSTEM

LESS RESTRICTIVE CHANGES

None

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.9.14, SPENT FUEL CASK DROP PROTECTION SYSTEM

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 8

Improved Standard Technical Specifications (ISTS) not adopted in the CNP ITS

ISTS 3.9.2, Unborated Water Source Isolation Valves

ISTS 3.9.2 Markup and Justification for Deviations (JFDs)

1

3.9 REFUELING OPERATIONS

3.9.2 [Unborated Water Source Isolation Valves]

- REVIEWER'S NOTE -

This Technical Specification is not required for units that have analyzed a boron dilution event in MODE 6. It is required for those units that have not analyzed a boron dilution event in MODE 6. For units which have not analyzed a boron dilution event in MODE 6, the isolation of all unborated water sources is required to preclude this event from occurring.

LCO 3.9.2 Each valve used to isolate unborated water sources shall be secured in the closed position.

APPLICABILITY: MODE 6.

ACTIONS

- NOTE -

Separate Condition entry is allowed for each unborated water source isolation valve.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. **- NOTE -** Required Action A.3 must be completed whenever Condition A is entered.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
One or more valves not secured in closed position.	A.2	Initiate actions to secure valve in closed position.	Immediately
	AND		
	A.3	Perform SR 3.9.1.1.	4 hours

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Verify each valve that isolates unborated water sources is secured in the closed position.	31 days

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JUSTIFICATION FOR DEVIATIONS
ISTS 3.9.2, UNBORATED WATER SOURCE ISOLATION VALVES

1. CNP has analyzed a boron dilution event in MODE 6. Isolation of all unborated water sources in MODE 6 is not required. Therefore, ISTS 3.9.2 is not included in the ITS.

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ISTS 3.9.2 Bases Markup and Justification for Deviations (JFDs)

B 3.9 REFUELING OPERATIONS

B 3.9.2 [Unborated Water Source Isolation Valves]

BASES

BACKGROUND	During MODE 6 operations, all isolation valves for reactor makeup water sources containing unborated water that are connected to the Reactor Coolant System (RCS) must be closed to prevent unplanned boron dilution of the reactor coolant. The isolation valves must be secured in the closed position. The Chemical and Volume Control System is capable of supplying borated and unborated water to the RCS through various flow paths. Since a positive reactivity addition made by reducing the boron concentration is inappropriate during MODE 6, isolation of all unborated water sources prevents an unplanned boron dilution.
APPLICABLE SAFETY ANALYSES	The possibility of an inadvertent boron dilution event (Ref. 1) occurring during MODE 6 refueling operations is precluded by adherence to this LCO, which requires that potential dilution sources be isolated. Closing the required valves during refueling operations prevents the flow of unborated water to the filled portion of the RCS. The valves are used to isolate unborated water sources. These valves have the potential to indirectly allow dilution of the RCS boron concentration in MODE 6. By isolating unborated water sources, a safety analysis for an uncontrolled boron dilution accident in accordance with the Standard Review Plan (Ref. 2) is not required for MODE 6. The RCS boron concentration satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).
LCO	This LCO requires that flow paths to the RCS from unborated water sources be isolated to prevent unplanned boron dilution during MODE 6 and thus avoid a reduction in SDM.
APPLICABILITY	In MODE 6, this LCO is applicable to prevent an inadvertent boron dilution event by ensuring isolation of all sources of unborated water to the RCS. For all other MODES, the boron dilution accident was analyzed and was found to be capable of being mitigated.

BASES

ACTIONS

The ACTIONS Table has been modified by a Note that allows separate Condition entry for each unborated water source isolation valve.

A.1

Continuation of CORE ALTERATIONS is contingent upon maintaining the unit in compliance with this LCO. With any valve used to isolate unborated water sources not secured in the closed position, all operations involving CORE ALTERATIONS must be suspended immediately. The Completion Time of "immediately" for performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position.

Condition A has been modified by a Note to require that Required Action A.3 be completed whenever Condition A is entered.

A.2

Preventing inadvertent dilution of the reactor coolant boron concentration is dependent on maintaining the unborated water isolation valves secured closed. Securing the valves in the closed position ensures that the valves cannot be inadvertently opened. The Completion Time of "immediately" requires an operator to initiate actions to close an open valve and secure the isolation valve in the closed position immediately. Once actions are initiated, they must be continued until the valves are secured in the closed position.

A.3

Due to the potential of having diluted the boron concentration of the reactor coolant, SR 3.9.1.1 (verification of boron concentration) must be performed whenever Condition A is entered to demonstrate that the required boron concentration exists. The Completion Time of 4 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration.

SURVEILLANCE REQUIREMENTS

SR 3.9.2.1

These valves are to be secured closed to isolate possible dilution paths. The likelihood of a significant reduction in the boron concentration during MODE 6 operations is remote due to the large mass of borated water in the refueling cavity and the fact that all unborated water sources are isolated, precluding a dilution. The boron concentration is checked every 72 hours during MODE 6 under SR 3.9.1.1. This Surveillance

BASES

SURVEILLANCE REQUIREMENTS (continued)

demonstrates that the valves are closed through a system walkdown. The 31 day Frequency is based on engineering judgment and is considered reasonable in view of other administrative controls that will ensure that the valve opening is an unlikely possibility.

REFERENCES

1. FSAR, Section [15.2.4].
2. NUREG-0800, Section 15.4.6.

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JUSTIFICATION FOR DEVIATIONS
ISTS 3.9.2 BASES, UNBORATED WATER SOURCE ISOLATION VALVES

1. Changes are made to be consistent with changes made to the Specification.

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