ENCLOSURE 2

VOLUME 14

TURKEY POINT NUCLEAR PLANT
UNIT 3 AND UNIT 4

IMPROVED TECHNICAL
SPECIFICATIONS CONVERSION

ITS SECTION 3.9
REFUELING OPERATIONS

Revision 0

LIST OF ATTACHMENTS

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ATTACHMENT 1

ITS 3.9.1 – BORON CONCENTRATION

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

3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

LCO 3.9.1

3.9.1 The boron concentration ~~of all filled portions~~ of the Reactor Coolant System and the refueling canal, and the refueling cavity shall be maintained ~~uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met; either:~~ within the limit specified in the COLR

~~a. A K_{eff} of 0.95 or less, or~~

~~b. A boron concentration of greater than or equal to 2300 ppm.~~

Applicability

APPLICABILITY: MODE 6.~~*~~

Add proposed Applicability Note

ACTION:

ACTION A

With the requirements of the above specification not satisfied, immediately suspend ~~all operations involving CORE ALTERATIONS or~~ positive reactivity changes and initiate and continue boration ~~at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron 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 2300 ppm, whichever is the more restrictive.~~

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 vessel.~~

SR 3.9.1.1

4.9.1.2 The boron concentration of the Reactor Coolant System ~~and the refueling canal shall be determined by chemical analysis~~ in accordance with the Surveillance Frequency Control Program.

specified in the COLR

~~4.9.1.3 Valves isolating unborated water sources~~~~**~~ ~~shall be verified closed and secured in position by mechanical stops or by removal of air or electrical power in accordance with the Surveillance Frequency Control Program.~~

~~* The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.~~

~~** The primary water supply to the boric acid blender may be opened under administrative controls for makeup.~~

DISCUSSION OF CHANGES
ITS 3.9.1, BORON CONCENTRATION

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) 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. 5.0, "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.

A02 CTS 3.9.1 requires, in part, that with the reactor vessel head closure bolts less than fully tensioned or with the head removed, that the boron concentration of the Reactor Coolant System (RCS) and the refueling canal shall be maintained. Additionally, CTS 3.9.1 Applicability is MODE 6 and contains a Note (Note *) which states that the reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed. ITS Limiting Condition for Operation (LCO) 3.9.1 requires, in part, that the boron concentration of the RCS and the refueling canal shall be maintained. Furthermore, ITS LCO 3.9.1 Applicability is MODE 6. This changes the CTS by not including wording about the reactor vessel head closure bolts less than fully tensioned or the head removed.

This change is acceptable because the technical requirements have not changed. ITS Chapter 1.0, Table 1.1-1 defines MODE 6 as when one or more of the reactor vessel head bolts are less than fully tensioned. Therefore, there is no need to repeat the MODE 6 requirements in the LCO and the Applicability. This change has been designated as administrative because the technical requirements of the specification have not changed.

A03 CTS 3.9.1 provides requirements on the boron concentration of all filled portions of the RCS and the refueling canal. Additionally, CTS 4.9.1.2 requires a determination of the boron concentration of the RCS and the refueling canal. ITS 3.9.1 provides requirements on the boron concentration of the RCS, which includes the refueling canal and the refueling cavity as specified in the ITS Bases. This changes the CTS by including the refueling cavity in the volumes required to have boron concentration maintained, which will be specified in the TS Bases.

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 specification have not changed.

MORE RESTRICTIVE CHANGES

M01 CTS Surveillance Requirement (SR) 4.9.1.2 requires the RCS boron concentration to be verified in accordance with the Surveillance Frequency Control Program (SFCP). ITS 3.9.1.1 requires the RCS boron concentration to be verified within limits specified in the CORE OPERATING LIMITS REPORT (COLR) in accordance with the SFCP. In addition, the CTS specifies that the RCS includes the refueling canal, which the ITS includes in the Bases along with the refueling cavity (see DOCs A03 and LA02). This changes the CTS by specifying the boron concentration limits will be included in the COLR.

The purpose the SR to verify boron concentration is to ensure the reactor is maintained subcritical and within the initial condition of the boron dilution accident. The ITS specifies the limit is located in the COLR. This change is acceptable because the COLR is the appropriate place for this core limit and the boron concentration limit for PTN is currently located in the COLR. This change is designated as More Restrictive because the ITS will specify a new requirement that is not currently in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 6 – Removal of Cycle – Specific Limits from the Technical Specifications to the Core Operating Limits Report)* CTS 3.9.1 requires that the boron concentration in MODE 6 be maintained uniform and sufficient to ensure that the more restrictive reactivity condition of a k_{eff} of 0.95 or less; or a boron concentration of greater than or equal to 2300 ppm, is met. ITS LCO 3.9.1 requires the boron concentration of the RCS, the refueling canal, and the refueling cavity to be maintained within limit specified in the COLR. This changes the CTS by moving the MODE 6 boron concentration limits, which must be confirmed on a cycle-specified basis, to the COLR.

The removal of this cycle-specific parameter limit from the Technical Specifications and the placement into the COLR is acceptable because this limit is 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 placement protection of public health and safety. The ITS still retains requirements and Surveillances that verify that the cycle-specific parameter limit is being met. ITS 3.9.1 continues to require that the 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 requirements provided in ITS 5.6.3, "Core Operating Limits Report." ITS 5.6.3 ensures that the applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems limits, core limits such as SHUTDOWN MARGIN (SDM), transient analysis limits, and accident analysis limits) of the safety analysis are met. This change is designated as a less restrictive removal of detail change because information relating to a cycle-specific parameter limit is being removed from the Technical Specifications.

LA02 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.9.1.2 requires that the boron concentration of the RCS and the refueling canal be determined "by chemical analysis" in accordance with the SFCP. ITS SR 3.9.1.1 specifies the boron concentration of the RCS verified within the limits of the COLR in accordance with the SFCP. The ITS does not specify the boron concentration be determined by chemical analysis. This changes the CTS by moving the detail, that the boron concentration of the refueling canal be included and that the boron concentration be determined by "chemical analysis," to the ITS Bases. The CTS requirement that also includes the refueling cavity in the boron concentration verification and the addition that the limits be located in the COLR is discussed in DOCs A03 and M01, respectively.

The removal of these details for performing SRs 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.

LA03 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.9.1.3 requires that valves isolating unborated water sources shall be verified closed and secured in position "by mechanical stops or by removal of air or electrical power" in accordance with the SFCP. ITS does not have an SR stating this. This changes the CTS by moving the detail of verified closed and secured in position "by mechanical stops or by removal of air or electrical power" to the Bases.

The removal of these details for performing SRs 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 to verified closed and secured in position. 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

L01 *(Category 2 – Relaxation of Applicability)* CTS 3.9.1 provides a limit on the boron concentration of all filled portions of the RCS and the refueling canal when in MODE 6. ITS 3.9.1 modifies the Applicability 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 limit on the refueling canal and refueling cavity when those volumes are not connected 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 SDM. In addition, prior to connecting the refueling canal and refueling cavity to the RCS, a verification of boron concentration is performed to ensure the newly connected portions cannot decrease the boron concentration below the limit (note that the refueling canal and reactor cavity are normally filled from the Refueling Water Storage Tank which exceeds the minimal COLR boron limit). This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.9.1 ACTION specifies the compensatory actions for when the boron concentration requirement is not met. One of the compensatory actions is to suspend CORE ALTERATIONS. Under similar conditions, ITS 3.9.1 does not require suspension of CORE ALTERATIONS. This changes the CTS by deleting the requirement to suspend CORE ALTERATIONS when the boron concentration requirement is not met.

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 SDM. Thus, when the limit is not met, the CTS 3.9.1 ACTION suspends CORE ALTERATIONS to preclude an event that could result in not meeting the SDM limit. CORE ALTERATIONS is defined in CTS 1.1, in part, as "the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the vessel head removed and fuel in the vessel." There are two evolutions encompassed under the term CORE ALTERATIONS that could affect the SDM: the addition of fuel and the withdrawal of control rods. However, ITS 3.9.1 Required Action A.1, requires immediate

suspension of positive reactivity changes. The immediate suspension of positive reactivity changes would include both the addition of fuel to the reactor vessel and the withdrawal of control rods. Another accident considered in MODE 6 that could affect SDM is a dilution event. A boron dilution accident is mitigated by stopping the dilution. Therefore, since the only CORE ALTERATIONS that could affect the SDM are suspended by ITS 3.9.1 Required Action A.1, deletion of the requirement to suspend CORE ALTERATIONS is acceptable. This change is designated as less restrictive because less stringent Required Actions are being applied to the ITS than were applied in the CTS.

L03 *(Category 4 – Relaxation of Required Action)* CTS 3.9.1 ACTION states that when the boron concentration is not met to initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 5245 ppm boron 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 2300 ppm, whichever is the more restrictive. ITS 3.9.1 Required Action A.2 requires the initiation of an action to restore boron concentration to within limit. This changes the 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 is to restore the required SDM 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 condition in order to minimize risk associated with continued operation while providing time to repair the inoperable features. Specifying the boric acid solution requirements in the ACTION is not necessary, since ITS 3.9.1 Required Action A.2 requires that action be taken immediately to restore the boron concentration. This prompt action will result in the boron concentration being restored as quickly, or more quickly, than the CTS requirement. This change has been designated as a less restrictive change because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L04 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.9.1.1 requires the reactivity condition of the RCS 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 three feet from its fully inserted position. ITS 3.9.1 does not contain this SR. This changes the CTS by deleting a SR to determine reactivity conditions prior to removing or unbolting the reactor vessel head, and prior to withdrawal of any full length control rod in excess of three feet from its fully inserted position.

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 SDM prior to withdrawing any control rods. This change is acceptable because the deleted SR 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 an action is immediately initiated to restore the boron concentration and that all positive reactivity additions are 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 the ITS ACTION (which prohibits withdrawal of control rods when the boron concentration requirement is not met). This change is designated as less restrictive because a Surveillance required in the CTS will not be required in the ITS.

L05 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.9.1.3 requires the valves isolating unborated sources to be verified closed and secured in position by mechanical stops or by removal of air or electrical power in accordance with the SFCP. CTS SR 4.9.1.3 is modified by a Note that allows the primary water supply to the boric acid blender to be opened under administrative controls for makeup. ITS 3.9.1 will not contain this SR. This changes the CTS by deleting a SR to verify valves isolating unborated sources to be verified and the Note that modifies the SR.

The purpose of CTS 4.9.1.3 is to ensure that all unborated water sources to the RCS are isolated. This action would preclude a dilution event from occurring. However, this SR is not required because PTN has been analyzed for a boron dilution event during MODE 6. Deletion of this SR is acceptable because the deleted SR is not necessary to ensure a successful outcome from a boron dilution event. The Boron Dilution Event in Mode 6 was analyzed at PTN and found to be incredible because of the procedures involved in the dilution of the RCS. However, in the event of an unintentional dilution of boron in the RCS, numerous alarms and indications are available to alert the operator to the condition. The maximum reactivity addition due to the dilution is slow enough to allow the operator to determine the cause of the addition and take corrective action before excessive SDM is lost. This change is designated as less restrictive because a Surveillance 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

3.9.1 Boron Concentration

3.9.1

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

1

Applicability

APPLICABILITY: MODE 6.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within the limit specified in the COLR.	~~[72 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

SR 4.9.1.2
LA02, M01

3

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.1, BORON DILUTION

1. Typographical/grammatical error corrected.

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

3. Changes are made to be consistent with the current licensing bases.

4. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

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.

27, 28, 29 1967 AEC Proposed

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.

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.

1

BASES

APPLICABLE SAFETY ANALYSES

INSERT 1

~~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. 1

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.

INSERT 2

~~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)." 1

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 RCS. When the refueling canal and the refueling cavity are isolated from the RCS, no potential path for boron dilution exists.

ACTIONS

A.1

Continuation of 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

BASES

ACTIONS (continued)

volume in the RCS, the refueling canal, or the refueling cavity is less than its limit, all operations involving positive reactivity additions must be suspended immediately.

Suspension of 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.2

In addition to immediately suspending 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

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

~~[A 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.~~

3

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~REVIEWER'S NOTE~~

~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~

~~]~~

REFERENCES

1. ~~10 CFR 50, Appendix A, GDC 26~~. (27, 28, 29 1967 AEC Proposed)
2. FSAR, Chapter ~~[15]~~. (U) (14.1.5)

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.1 BASES, BORON CONCENTRATION

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

3. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

4. Changes are made to be consistent with the current licensing bases.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.1, BORON CONCENTRATION

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 2

ITS 3.9.2 – REFUELING CAVITY WATER LEVEL

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

ITS

A01

REFUELING OPERATIONS

3.9.2 3/4.9.10 REFUELING CAVITY WATER LEVEL

LIMITING CONDITION FOR OPERATION

LCO 3.9.2 3.9.10 Refueling cavity water level shall be maintained ≥ 23 feet above the top of the reactor vessel flange.

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

ACTION:

ACTION A With the refueling cavity water level not within limit, suspend movement of irradiated fuel assemblies within containment immediately.

SURVEILLANCE REQUIREMENTS

SR 3.9.2.1 4.9.10 Verify refueling cavity water level is ≥ 23 feet above the top of the reactor vessel ~~flange within 2 hours prior to the start of and~~ in accordance with the Surveillance Frequency Control Program ~~thereafter~~ during movement of irradiated fuel assemblies within containment.

L01

A01

APPLICABILITY

DISCUSSION OF CHANGES
ITS 3.9.2, REFUELING CAVITY WATER LEVEL

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) 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. 5.0, "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.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L01 *(Category 7 – Relaxation of Surveillance Frequency Change - NON-24 MONTH TYPE CHANGE)* CTS Surveillance Requirement (SR) 4.9.10 requires the verifying refueling cavity water level is ≥ 23 feet above the top of the reactor vessel flange within 2 hours prior to the start of movement of irradiated fuel assemblies within containment and in accordance with the Surveillance Frequency Control Program (SFCP). ITS SR 3.9.2.1 contains the same surveillance as in the CTS and requires it to be verified in accordance with the SFCP, but does not contain the 2-hour Surveillance Frequency requirement. This changes the CTS by eliminating the 2-hour Frequency requirement prior to movement of irradiated fuel assemblies within containment.

The purpose of CTS SR 4.9.10 is to ensure there is adequate water level above the top of the reactor vessel flange during movement of irradiated fuel within containment. Eliminating the 2-hour requirement to verify water level prior to moving irradiated fuel within containment is acceptable, because SR 3.0.1 requires the LCO to be met when the specification is applicable, thus the SR is required to be performed prior to movement of irradiated fuel within containment. In addition, performing the SR without the 2-hour requirement continues to ensure there is a minimum water level of 23 feet above the top of the reactor

vessel flange and that the design basis for the analysis of the postulated fuel handling accident during refueling operations is met. This limits the consequences of damaged fuel rods that are postulated to result from a fuel handling accident inside containment. This change is designated as less restrictive because a SR Frequency is being eliminated.

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

CTS

3.9 REFUELING OPERATIONS

3.9.10

3.9.~~7~~ Refueling Cavity Water Level

LCO 3.9.10

LCO 3.9.~~7~~ Refueling cavity water level shall be maintained ≥ 23 ft above the top of reactor vessel flange.

APPLICABILITY

APPLICABILITY: During movement of irradiated fuel assemblies within containment.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 4.9.10 SR 3.9.~~7~~.1 Verify refueling cavity water level is ≥ 23 ft above the top of reactor vessel flange.	~~[24 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.2, REFEULING CAVITY WATER LEVEL

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

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 ~~[X]~~ 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~~.

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."

BASES

ACTIONS

A.1

With a water level of < 23 ft above the top of the reactor vessel flange, all operations involving or 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.~~

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~REVIEWER'S NOTE~~

~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~

~~]~~

REFERENCES

1. Regulatory Guide ~~1.25, March 23, 1972~~ 1.83, July 2000.
2. FSAR, Section ~~[15.4.5]~~ 14.2.1.2.
3. ~~NUREG-0800, Section 15.7.4~~ 10 CFR 50.67.
4. ~~10 CFR 100.10~~.

2

1

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.

1

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Revision XXX

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.2 BASES, REFUELING WATER CAVITY LEVEL

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases that reflect the plant-specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Changes are made to reflect changes made to the Specification.

4. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.2, REFUELING CAVITY WATER LEVEL

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 3

ITS 3.9.3 – NUCLEAR INSTRUMENTATION

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

ITS

A01

REFUELING OPERATIONS

3.9.3 3/4.9.2 INSTRUMENTATION

Nuclear

A01

LIMITING CONDITION FOR OPERATION

LCO 3.9.3 3.9.2 As a minimum, one primary Source Range Neutron Flux Monitor with continuous visual indication in the control room and audible indication in the containment and control room, and one of the remaining three Source Range Neutron Flux Monitors (one primary or one of the two backup monitors) with continuous visual indication in the control room shall be OPERABLE.

APPLICABILITY APPLICABILITY: MODE 6.

----------NOTE----------
Fuel assemblies, sources, and reactivity control components may be moved if necessary to restore an inoperable source range neutron flux monitor or to complete movement of a component to a safe condition.

L01

ACTION:

ACTION A a. With one of the above required monitors inoperable ~~or not operating~~, immediately suspend all operations involving ~~CORE ALTERATIONS~~ or positive reactivity changes.

A02

A03

ACTION B b. With both of the above required monitors inoperable or not operating, determine the boron concentration of the Reactor Coolant System at least once per 12 hours.

Movement of fuel sources and reactivity control components within the reactor vessel

initiate action to restore one source range neutron flux monitor to OPERABLE status immediately and

M01

ACTION C C. Required source range audible alarm circuit inoperable, initiate action to isolate water sources immediately.

M02

SURVEILLANCE REQUIREMENTS

4.9.2 Each required Source Range Neutron Flux Monitor shall be demonstrated OPERABLE by performance of:

SR 3.9.3.1 a. A CHANNEL CHECK in accordance with the Surveillance Frequency Control Program,

~~b. An ANALOG CHANNEL OPERATIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS, and~~

L02

SR 3.9.3.2 c. An ~~ANALOG~~ CHANNEL OPERATIONAL TEST in accordance with the Surveillance Frequency Control Program.

A04

DISCUSSION OF CHANGES
ITS 3.9.3, NUCLEAR INSTRUMENTATION

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) 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. 5.0, "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.

A02 CTS 3.9.2 ACTION a requires actions when one of the required Source Range Neutron Flux Monitor is inoperable or not operating. ITS 3.9.3 requires actions when one of the required Source Range Neutron Flux Monitor is inoperable. This changes the CTS by not specifically stating action is required when one of the required Source Range Neutron Flux Monitor is not operating.

The Source Range Neutron Flux Monitors are required to be operating to be OPERABLE, i.e., to perform the specified safety function to detect and indicate. Specifically requiring action when one required Source Range Neutron Flux Monitor is not operating is not required as it is inherent in the OPERABILITY of the monitors. This change is considered administrative because removing the specific requirement for the Source Range Neutron Flux Monitor to be operating does not affect the monitors, which are required to be operating to be OPERABLE.

A03 CTS 3.9.2 ACTION a refers to suspending all operations involving CORE ALTERATIONS or positive reactivity changes when one required Source Range Neutron Flux Monitor is inoperable. ITS 3.9.3 ACTION A refers to suspending movement of fuel, sources, and reactivity control components within the reactor vessel and positive reactivity additions. This changes the CTS by not requiring the suspension of CORE ALTERATIONS, but suspension of movement of fuel, sources, and reactivity control components.

The definition of CORE ALTERATIONS in the CTS is the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the vessel head removed and fuel in the vessel. NUREG-1432 Revision 5 does not contain the definition of CORE ALTERATIONS (see ITS Section 1.0, DOC A05 for the elimination of this definition for PTN). The ITS requires the suspension of movement of fuel, sources, and reactivity control components instead of requiring the suspension of CORE ALTERATIONS as required in the CTS. Per the CTS definition of CORE ALTERATIONS and what the ITS requires, the ITS and CTS actions are essentially equivalent. This change is considered administrative because the requirements in the ITS are essentially equivalent to the requirement in the CTS to suspend CORE ALTERATIONS.

DISCUSSION OF CHANGES
ITS 3.9.3, NUCLEAR INSTRUMENTATION

A04 CTS Surveillance Requirement (SR) 4.9.2.c requires an analog CHANNEL OPERATIONAL TEST (COT) be performed. ITS SR 3.9.3.2 requires a COT to be performed. This changes the CTS by just requiring a COT versus an analog COT, which is consistent with NUREG-1432, Revision 5. NUREG-1432, Revision 5, combines the digital COT and analog COT into one definition of COT (see ITS Section 1.0 conversion package, DOCs L01 and A04, for the discussion of combining the two for PTN).

The purpose of the CTS SR to perform an analog COT is to ensure the Source Range Neutron Flux Monitors are OPERABLE to perform the specified safety function to detect and alert the operators of a boron dilution event. The ITS requirement to perform a COT will continue to ensure the monitors are OPERABLE. The combination of the definition of digital and analog COT in the definition section does not alter how the COT is performed on the monitors. This change is considered administrative because there is no change in how the COT SR is performed.

MORE RESTRICTIVE CHANGES

M01 CTS 3.9.2 ACTION b, requires that when two required Source Range Neutron Flux Monitors are inoperable, to determine the boron concentration of the Reactor Coolant System (RCS) once per 12 hours. ITS 3.9.3, ACTION B requires the initiation of action to restore one source range neutron flux monitor to OPERABLE status immediately and to perform SR 3.9.1.1 (verify boron concentration) once per 12 hours when two required monitors are inoperable. This changes the CTS by adding a requirement to "immediately" initiate action to restore one monitor to OPERABLE status.

The purpose of CTS ACTION b is to ensure action is taken to monitor the boron concentration when two required Source Range Neutron Flux Monitors are inoperable to ensure the operators detect and take action if a boron dilution event were to occur. The addition of the additional ITS requirement to immediately initiate action to restore one monitor to OPERABLE status does not hinder or preclude monitoring the boron concentration verification because the ITS also requires the boron concentration be verified. While in reality the plant will perform the function to restore the inoperable monitors, explicitly requiring this action in the ITS constitutes adding an additional requirement. This change is classified as More Restrictive because an additional requirement is being added to the CTS Actions.

M02 CTS 3.9.2 does not contain a specific requirement if the source range audible alarm circuit is inoperable. ITS 3.9.5 ACTION C adds a specific action to initiate action to immediately isolate unborated water sources. This changes the CTS by adding a specific action when the source range audible alarm circuit is inoperable.

DISCUSSION OF CHANGES
ITS 3.9.3, NUCLEAR INSTRUMENTATION

The purpose of the CTS is to specify actions when one or two monitors are inoperable. However, the CTS does not contain specific actions when the audible alarm circuit is inoperable; therefore, the same actions would be taken if the monitor were inoperable. The ITS adds specific actions when the audible alarm is inoperable, different then if the monitor is inoperable. The addition of the action to immediately initiate action to isolate unborated water sources will preclude a boron dilution event from occurring. With the loss of the audible alarm, prompt and definite indication of a boron dilution event, consistent with the safety analysis, could be lost and a boron dilution event may not be detected in a timely manner. Isolating the boration flow paths to the RCS precludes the boron dilution event. This change is considered More Restrictive because additional actions are required when the source range audible alarm circuit is inoperable.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* ITS 3.9.3 contains a Required Action A.2 Note that states, "Fuel assemblies, sources, and reactivity control components may be moved if necessary to restore an inoperable source range neutron flux monitor or to complete movement of a component to a safe condition." The CTS does not contain this Note, but the CTS definition of CORE ALTERATIONS allow for the completion of movement of a component to a safe position. This changes the CTS by adding a requirement for fuel assemblies, sources, and reactivity control components to be moved, if necessary, to restore an inoperable Source Range Neutron Flux Monitor.

The purpose of the first half of ITS 3.9.3 Required Action A.2 Note is to allow fuel assemblies, sources, and reactivity control components to be moved to restore OPERABILITY of the Source Range Neutron Flux Monitors. This portion of the Note is not currently allowed by the CTS. However, the addition of this portion of the Note needs to be included because it may be necessary to move fuel assemblies, added sources, and reactivity control components away from the locations in the core close to the Source Range Neutron Flux Monitor to minimize personnel radiation dose during troubleshooting or repair. 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 and the added Required Action Note does not affect the purpose of the Required Action. This change is designated as less restrictive because the Note provides an allowance that is not currently required in the CTS.

DISCUSSION OF CHANGES
ITS 3.9.3, NUCLEAR INSTRUMENTATION

L02 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.9.2.b requires a COT to be performed within 8 hours prior to the initial start of CORE ALTERATIONS. ITS 3.9.3 SRs do not require the performance of similar tests for the required Source Range Neutron Flux Monitors. This changes the CTS by deleting the COT Frequency of within 8 hours of CORE ALTERATIONS.

This change is acceptable because the deleted SR Frequency is 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. The ITS requirement to perform a COT in accordance with the Surveillance Frequency Control Program (SFCP - 7-day Frequency) continue to ensure the monitors are OPERABLE. Given the performance of the COT in accordance with the SFCP, there is no reason to believe that 8 hours prior to CORE ALTERATIONS will result in the monitors not meeting the COT requirements; therefore, continued performance in accordance with the SFCP is acceptable to provide assurance that the monitors will perform as required to meet the specified safety function. This change is designated as less restrictive because a Surveillance Frequency for the COT 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

3.9.2

3.9.3 Nuclear Instrumentation

LCO 3.9.2

LCO 3.9.3 Two source range neutron flux monitors shall be OPERABLE.

AND

[One source range audible [alarm] [count rate] circuit shall be OPERABLE.] 1

APPLICABILITY

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a A. One [required] source range neutron flux monitor inoperable.	A.1 Suspend positive reactivity additions. AND A.2 ---------- NOTE ---------- Fuel assemblies, sources, and reactivity control components may be moved if necessary to restore an inoperable source range neutron flux monitor or to complete movement of a component to a safe condition. ---------- L01 Suspend movement of fuel, sources, and reactivity control components within the reactor vessel. A03	Immediately 1 Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M01 B. Two [required] source range neutron flux monitors inoperable.	B.1 Initiate action to restore one source range neutron flux monitor to OPERABLE status. AND	Immediately
ACTION b	B.2 Perform SR 3.9.1.1.	Once per 12 hours
~~----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. ----------~~ M02 C. ~~[~~ Required source range audible ~~[~~alarm~~]~~ ~~[count rate]~~ circuit inoperable.	C.1 Initiate action to isolate unborated water sources.	Immediately ~~]~~ (3) (1) (1)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 4.9.2.a SR 3.9.3.1	Perform CHANNEL CHECK.	~~[12 hours~~ ~~OR~~ (1) In accordance with the Surveillance Frequency Control Program ~~]~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.9.3.2	~~NOTE~~ ~~Neutron detectors are excluded from CHANNEL CALIBRATION.~~ Perform ~~CHANNEL CALIBRATION~~.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

SR 4.9.2.b
SR 4.9.2.c

COT

4

1

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2

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.3, NUCLEAR INSTRUMENTATION

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

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

3. This "Reviewers Note" is being deleted. The Reviewer's Note is for the NRC reviewer during the NRC review and will not be part of the plant specific ITS.

4. Consistent with current licensing basis, a CHANNEL OPERATION TEST (COT) is performed on the required Source Range Neutron Flux Monitors instead of a CHANNEL CALIBRATION. The purpose of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) Surveillance Requirement (SR) is to ensure the monitors operate to detect and indicate an increase in count rate due to a boron dilution event during refueling. The COT ensures this by injecting a simulated signal into the channel close to the sensor as practicable to verify the required monitors perform as required. The SR 3.9.3.2 Note is being deleted because it is not needed when performing a COT.

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.~~

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.

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~~]~~ to alert operators to a possible dilution accident~~]~~. The NIS is designed in accordance with the criteria presented in Reference 1.

One decade (3.16)

2

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).~~]~~

2

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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."~~ 1

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.~~]~~ 2

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 3.3.9, "BDPS"]~~. 2

ACTIONS

A.1 and A.2

With only one source range neutron flux monitor OPERABLE, redundancy has been lost. Since these instruments are the only direct means of monitoring core reactivity conditions, positive reactivity additions and movement of fuel, sources, and reactivity control components within the reactor vessel must be suspended immediately. Performance of Required Action A.1 shall not preclude completion of movement of a component to a safe position. Suspending the movement of fuel, sources, and reactivity control components ensures that positive reactivity is not inadvertently added to the reactor core while the source range neutron flux monitor is inoperable. Required Action A.2 is modified by a Note that states that fuel assemblies, sources, and reactivity control components may be moved if necessary to facilitate repair or replacement of the inoperable source range neutron flux monitor. It may be necessary to move these items away from the locations in the core close to the source range neutron flux monitor to minimize personnel radiation dose during troubleshooting or repair. The Note also permits completion of movement of a component to a safe position, should the source range neutron flux monitor be discovered inoperable during component movement.

BASES

ACTIONS (continued)

B.1

With no 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

With no source range neutron flux monitor OPERABLE, there are no direct means of detecting changes in core reactivity. However, since 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.

~~[~~ C.1

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 channels. 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.~~

2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~REVIEWER'S NOTE~~

~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~

~~]~~

1

SR 3.9.3.2

OPERATIONAL TEST (COT)

SR 3.9.3.2 is the performance of a CHANNEL ~~CALIBRATION~~. ~~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.~~

COT

Injecting a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY.

COT

4

2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

~~REVIEWER'S NOTE~~

~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~

~~]~~

1

REFERENCES

1. ~~10 CFR 50, Appendix A, GDC 13, GDC 26, GDC 28, and GDC 29~~.

14.1.5

2

2. FSAR, Section ~~[15.2.4]~~.

U

1967 AEC Proposed GDC 12, 27, 28, 29, 32, 33

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USTIFICATION FOR DEVIATIONS
ITS 3.9.3 BASES, ECCS OPERATING

1. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

2. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

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

4. Changes are made to reflect changes made to the Specification.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.3, NUCLEAR INSTRUMENTATION

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 4

ITS 3.9.4 – CONTAINMENT PENETRATIONS

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

ITS

CONTAINMENT SYSTEMS A01

SURVEILLANCE REQUIREMENTS (Continued)

SR 3.9.4.2 4.6.4.2 Each isolation valve shall be demonstrated OPERABLE during the COLD SHUTDOWN or REFUELING MODE in accordance with the Surveillance Frequency Control Program by:

See ITS 3.6.3

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

b. Verifying that on a Phase "B" Isolation test signal, each Phase "B" isolation valve actuates to its isolation position; and

SR 3.9.4.2 c. Verifying that on a Containment Ventilation Isolation test signal, each purge, exhaust and instrument air bleed valve actuates to its isolation position.

4.6.4.3 The isolation time of each power-operated or automatic valve shall be determined to be within its limit when tested in accordance with the INSERVICE TESTING PROGRAM.

See ITS 3.6.3

3/4.6.5 DELETED

3/4.6.6 DELETED

ITS

A01

REFUELING OPERATIONS

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

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

LCO 3.9.4.a a. The equipment door closed and held in place by a minimum of four bolts.

LCO 3.9.4.b b. A minimum of one door in each airlock is closed, or, both doors of the containment personnel airlock may be open if:

1) at least one personnel airlock door is capable of being closed.

~~2) The plant is in MODE 6 with at least 23 feet of water above the reactor vessel flange, and~~

~~3) a designated individual is available outside the personnel airlock to close the door.~~

LA01

LCO 3.9.4.c c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:*

LCO 3.9.4.c.1 1) Closed by an isolation valve, blind flange, or manual valve, or

LCO 3.9.4.c.2 2) Be capable of being closed by an OPERABLE automatic containment ventilation isolation valve.

APPLICABILITY APPLICABILITY: During movement of recently irradiated fuel within the containment.

ACTION:

ACTION A With the requirements of the above specification not satisfied, immediately suspend all operations involving movement of recently irradiated fuel in the containment building.

SURVEILLANCE REQUIREMENTS

LCO 3.9.4.c.1 4.9.4 Each of the above required containment building penetrations shall be determined to be either in its closed/isolated condition or capable of being closed by an OPERABLE automatic containment ventilation isolation valve ~~within 100 hours prior to the start of~~ and in accordance with the Surveillance Frequency Control Program during movement of recently irradiated fuel in the containment building by:

LCO 3.9.4.c.2
SR 3.9.4.1 & 2 Frequency
APPLICABILITY

L02

A01

SR 3.9.4.1 a. Verifying the penetrations are in their closed/isolated condition, ~~or~~

SR 3.9.4.2 b. Testing the containment ventilation isolation valves per the applicable portions of Specification 4.6.4.2.

*Exception may be taken under Administrative Controls for opening of certain valves and airlocks ~~necessary to perform surveillance or testing requirements~~.

LCO Note

LA02

A01

REFUELING OPERATIONS

3/4.9.5 DELETED

A01

REFUELING OPERATIONS

3/4.9.6 DELETED

3/4.9.7 DELETED

ITS

A01

REFUELING OPERATIONS

3/4.9.9 CONTAINMENT VENTILATION ISOLATION SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.9.4.c.2 3.9.9 The Containment Ventilation Isolation System shall be OPERABLE.

APPLICABILITY APPLICABILITY: During movement of irradiated fuel within the containment.

recently

L01

ACTION:

LCO 3.9.4.c a. With the Containment Ventilation Isolation System inoperable, close each of the containment ventilation penetrations providing direct access from the containment atmosphere to the outside atmosphere.

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

A02

SURVEILLANCE REQUIREMENTS

SR 3.9.4.2 4.9.9 The Containment Ventilation Isolation System shall be demonstrated OPERABLE ~~within 100 hours prior to the start of and~~ in accordance with the Surveillance Frequency Control Program during movement of irradiated fuel inside the containment by verifying that Containment Ventilation Isolation occurs on a High Radiation test signal from each of the containment radiation monitoring instrumentation channels.

L02

A03

L01

APPLICABILITY

recently

DISCUSSION OF CHANGES
ITS 3.9.4, CONTAINMENT PENETRATIONS

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) 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. 5.0, "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.

A02 CTS 3.9.9 ACTION b states the provisions of 3.0.3 are not applicable. ITS 3.9.4 ACTIONS do not contain this requirement. This changes the CTS by eliminating the provision that Limiting Condition for Operation (LCO) 3.0.3 is not applicable.

The CTS ACTION b provision that LCO 3.0.3 is not applicable is not necessary because LCO 3.0.3 requires, when the LCO and the associated ACTIONS are not met, within one hour, place the unit in MODE 3 within 7 hours, MODE 4 within 16 hours and MODE 5 with 37 hours. However, the applicability for CTS 3.9.9 is during movement of irradiated fuel within the containment and that can only be performed in MODE 6; therefore, this provision is not required. The unit is already outside the lowest MODE required (MODE 5) by LCO 3.0.3. Thus, deleting this requirement is considered administrative because the provision does not accomplish anything.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS LCO 3.9.4.b.2 & 3 contain the requirements for having less than two airlock doors closed. ITS LCO 3.9.4 contains only the requirement that at least one personnel airlock is capable of being closed. The ITS does not contain the requirement for the unit to be in MODE 6 with 23 feet of water above the reactor vessel flange and that a designated individual is available outside the personnel airlock to close the door. This changes the CTS by not including in the ITS all the requirements to have less than two containment airlock doors closed.

DISCUSSION OF CHANGES
ITS 3.9.4, CONTAINMENT PENETRATIONS

The CTS establish requirements for maintaining one or both airlock doors open. The ITS will not contain all the requirements, which is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The requirements will be relocated to the Technical Specification Bases where the requirements will be adequately controlled. 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 existing requirements for having less than two doors in the airlock closed is being removed from the Technical Specifications.

LA02 *(Type 4 – – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS LCO 3.9.4.c. contains a footnote that specifies the exceptions for opening containment isolation valves (CIVs), surveillances and testing requirements. ITS LCO 3.9.4 does not list specific exceptions for allowing the opening of valves under administrative controls. This changes the CTS by not including the exceptions for allowing the opening of CIVs under administrative controls.

The CTS establish specific exceptions (surveillances and testing requirements) for opening CIVs under administrative controls. The ITS will not contain these specific exceptions, which is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The exceptions will be relocated to the Technical Specification Bases where the requirements will be adequately controlled. 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 existing exceptions for allowing the CIVs to be opened under administrative controls is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 2 – Relaxation of Applicability)* CTS 3.9.9 Applicability states "During movement of irradiated fuel within containment." ITS 3.9.4 Applicability states "During movement of recently irradiated fuel assemblies within containment." This changes the CTS by modifying the Applicability to when only "irradiated" fuel assemblies are being moved versus all irradiated fuel assemblies.

The purpose of the CTS and the ITS is to ensure the initial conditions of the Fuel Handling Accident (FHA) are being met. This change is acceptable because the changed Applicability continues to ensure that the initial condition of the FHA is maintained. Fuel movement is restricted to certain time after the unit is shut down and the addition of irradiated is consistent with the FHA. The containment

ventilation system is not assumed to be closed during the FHA. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the ITS.

L02 *(Category 5 – Deletion of Surveillance Requirement)* CTS Surveillance Requirement (SR) 4.9.4 requires each containment building penetration to be determined to be either in its closed/isolated condition or capable of being closed by an OPERABLE automatic containment ventilation isolation valve within 100 hours prior to the start of movement of irradiated fuel in the containment building. ITS SR 3.9.4 does not contain this requirement. This changes the CTS by eliminating the requirement to perform the SR 100 hours prior to the start of movement of recently irradiated fuel in the containment building.

This change is acceptable because the deleted SR Frequency is not necessary to verify that the equipment used to meet the LCO is consistent with the safety analysis. The penetrations will continue to be verified to be closed or capable of being closed in accordance with the Surveillance Frequency Control Program, providing sufficient confidence that the assumptions in the safety analyses are protected. Therefore, continued performance in accordance with the SFCP is acceptable to provide assurance that the valves are in their correct position or will perform as required to meet the specified safety function. This change is designated as less restrictive because a Surveillance Frequency 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

3.9.4

3.9.4 Containment Penetrations

LCO 3.9.4
LCO 3.9.9

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

LCO 3.9.4.a

a. The equipment is hatch closed and held in place by [four] bolts, (1) (2)

LCO 3.9.4.b

b. One door in each air lock is [capable of being] closed, and (2)

LCO 3.9.4.c
ACTION 3.9.9.a

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

LCO 3.9.4.c.1

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

LCO 3.9.4.c.2

2. Capable of being closed by an OPERABLE Containment ~~Purge and Exhaust~~ Isolation System. (3)

Ventilation

Footnote *

----------NOTE----------
Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls.

APPLICABILITY

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 (2)

CTS

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
SR 4.9.4.a	SR 3.9.4.1	Verify each required containment penetration is in the required status.	~~[7 days~~ ~~OR~~ (2) In accordance with the Surveillance Frequency Control Program ~~]~~
SR 4.9.4.a SR 4.6.4.2 SR 4.9.9	SR 3.9.4.2	----------NOTE---------- Not required to be met for containment ~~purge and exhaust~~ valve(s) in penetrations closed to comply with LCO 3.9.4.c.1. ---------- (3) Verify each required containment ~~purge and exhaust~~ valve actuates to the isolation position on an actual or simulated actuation signal.	~~[[18] months~~ (2) ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

Ventilation Isolation

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.4, CONTAINMENT PENETRATIONS

1. These changes are grammatical corrections, correcting punctuation, or other changes that are consistent with the Writer's Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

2. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

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

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

B 3.9 REFUELING OPERATIONS

B 3.9.4 Containment Penetrations

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.

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.

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

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Revision XXX

BASES

BACKGROUND (continued)

Containment closure ensures that a release of fission product radioactivity within Containment will be restricted from escaping to the environment. The presence of a designated individual available outside of the personnel airlock to close the door, and a designated crew available to close the equipment door will minimize the release of radioactive materials.

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

Containment Ventilation System

The ~~Containment Purge and Exhaust System~~ includes two subsystems. The normal subsystem includes a ~~42~~ 48 inch purge penetration and a ~~42~~ 54 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~~ instrument air bleed 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.

the instrument air bleed system, contains a 2 inch inlet penetration valve and 2 inch outlet penetration valve.

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~~ 6, "~~Engineered Safety Feature Actuation System (ESFAS) Instrumentation.~~" Containment Ventilation Isolation Instrumentation," when moving recently irradiated fuel assemblies in containment.

Instrument air bleed

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

Containment Ventilation Isolation Instrumentation when moving recently irradiated fuel assemblies in containment.

~~[or]~~

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

The FHA is not analyzed when moving recently irradiated fuel assemblies; thus the requirements to isolate the containment during movement of recently irradiated fuel assemblies. While the movement of recently irradiated fuel is currently not allowed within the first 72 hours after shutdown, this LCO is being retained to maintain the initial conditions of the FHA. The Fuel Handling Accident is analyzed when moving irradiated fuel assemblies in containment with the containment penetrations assumed to be

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).

APPLICABLE SAFETY ANALYSES

(i.e., fuel that has occupied part of a critical reactor core within the previous 72 days)

During 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 ~~3~~, 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

BASES

APPLICABLE SAFETY ANALYSES (continued)

72

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)~~.

1

50.67

2

a 2 and

Containment penetrations satisfy Criteri~~on~~ 3 of 10 CFR 50.36(c)(2)(ii).

LCO

~~REVIEWER'S NOTE~~

~~The allowance to have containment personnel air lock doors open and penetration flow paths with direct access from the containment atmosphere to the outside atmosphere to be unisolated during fuel movement 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 air lock 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.~~

3

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 ~~[~~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 FSAR 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.

Ventilation

U

2

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2

BASES

LCO (continued)

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 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 many be open during movement of [recently] irradiated fuel in the containment 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~~ 50.67 even without containment closure capability.] Therefore, under these conditions no requirements are placed on containment penetration status.

(< 72 hour after shutdown)

an unanalyzed

≥ 72 hour after shutdown

1

2

1

~~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 10 CFR 100).~~

~~Additionally, licensees adding the term "recently" must make the following commitment which is consistent with NUMARC 93-01, Revision [4F], Section 11.3.6.5 "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:~~

3

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2

BASES

APPLICABILITY (continued)

~~- 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 contingency 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."~~

3

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.

Ventilation

2

1

SURVEILLANCE REQUIREMENTS

SR 3.9.4.1

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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

[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). 1

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

---------- REVIEWER'S NOTE ----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement. 3
----------]

SR 3.9.4.2

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 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 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. 1
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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~ 1

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~[REVIEWER'S NOTE~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~]~~

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 actuation capability.

REFERENCES

1. GPU Nuclear Safety Evaluation SE-0002000-001, Rev. 0, May 20, 1988.
2. FSAR, Section ~~[15.4.5]~~ 14.2.1. U 2 1
3. ~~NUREG-0800, Section 15.7.4, Rev. 1, July 1981.~~ 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.4 BASES, CONTAINMENT PENETRATIONS

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

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

3. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.4, CONTAINMENT PENETRATIONS

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 5

ITS 3.9.5 – RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - HIGH WATER LEVEL

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

ITS

A01

REFUELING OPERATIONS

3.9.5 3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

HIGH WATER LEVEL

LIMITING CONDITION FOR OPERATION

LCO 3.9.5 3.9.8.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation.*

APPLICIBILITY APPLICABILITY: MODE 6, when the water level above the top of the reactor vessel flange is greater than or equal to 23 feet.

ACTION A ACTION:

R.A A.4
R.A. A.5
Close equipment hatch and secure with four bolts and close one door in each air lock

A02

R.A A.2
R.A. A.1
R.A A.3
R.A. A.6.1
With no RHR loop OPERABLE and in operation, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to OPERABLE and operating status as soon as possible. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

Required Action (R.A.) A.6.2
or verify each penetration is capable of being closed by an OPERABLE Containment Ventilation Isolation System.

L01

SURVEILLANCE REQUIREMENTS

SR 3.9.5.1 4.9.8.1.1 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 3000 gpm in accordance with the Surveillance Frequency Control Program.

~~4.9.8.1.2 The RHR flow indicator shall be subjected to a CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.~~

LA01

SR 3.9.5.2 4.9.8.1.3 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water in accordance with the Surveillance Frequency Control Program.

LCO NOTE *The required RHR loop may be removed from operation for up to 1 hour per 8 hour period, provided no operations are permitted that would cause reduction of the Reactor Coolant System boron concentration.

DISCUSSION OF CHANGES
ITS 3.9.5, RHR AND COOLANT CIRCULATION – HIGH WATER LEVEL

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) 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. 5.0, "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.

A02 CTS 3.9.8.1 ACTION requires closure of containment penetrations when no Residual Heat Removal (RHR) trains are in operation. ITS 3.9.5 contains the same requirement but lists the equipment hatch and personnel air locks specifically in the ITS Actions. This changes the CTS by specifically listing penetrations to be closed if there are no RHR trains in operation.

The CTS does not list specific penetrations to be closed. The ITS lists some specific penetrations. This change is acceptable because whether specific penetrations are listed or not, the end result is the closure of all penetrations that have the potential to release radioactive gas to the outside atmosphere except for those that are closed by the containment ventilation isolation system. This change is classified as administrative because it does not result in any changes, besides listing the equipment hatch and personnel air lock.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 4.9.8.1.2 requires a CHANNEL CHECK to be performed on the RHR flow indicator. The ITS SRs do not include this SR. The CTS is being changed to move the CHANNEL CALIBRATION on the RHR flow indicator to the TRM.

The removal of CHANNEL CALIBRATION on the RHR flow indicator from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The ITS retains the requirement to verify the RHR loops are verified in operation and circulating reactor coolant at a specified flow rate. Also, this change is acceptable because these types of details will be adequately controlled in the TRM. 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 an SR is being removed from the Technical Specifications into the TRM.

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.9.8.1 ACTION requires a series of Actions when there are no RHR loops in operation. One of those Actions is to close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere. ITS 3.9.5 requires similar Actions (the ITS lists them individually) to close the containment penetrations; however, the ITS also allows those penetrations that are capable of being closed by the containment ventilation isolation system to be verified as capable of being closed. This changes the CTS by relaxing the requirement to close those penetrations that are isolated by the containment ventilation isolation system.

The CTS requires closing all penetrations that have access from containment to the outside atmosphere because with no RHR loops in operation the potential exists for the coolant to boil and release radioactive gas to the containment atmosphere. The ITS also requires closing those penetrations that are not shut by the containment ventilation isolation system; however, those associated with the containment ventilation isolation system may remain open provide the containment ventilation isolation system is capable of automatically closing these penetrations upon high radiation signal. Allowing those penetrations to remain open in this condition is acceptable because upon detection of high radiation the containment ventilation isolation system will close those penetrations. 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. In this case the remedial measures are to close penetrations that have the potential to release radioactive gas to the outside atmosphere and upon detection of high radiation signal for the containment ventilation isolation system to close any valves that receive the isolation signal. 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

3.9.8.1

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

LCO 3.9.8.1

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

----------NOTE----------
Footnote *

The required RHR loop may be removed from operation for ≤ 1 hour per 8 hour period, provided no operations are permitted that would cause introduction of coolant into the Reactor Coolant System with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1.

APPLICIBILITY

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RHR loop requirements not met.	A.1	Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
3.9.8.1 ACTION	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
DOC A02	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	
3.9.8.1 ACTION	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	
DOC L01	A.6.2 Verify each penetration is capable of being closed by an OPERABLE Containment ~~Purge and Exhaust~~ Isolation System.	4 hours

Ventilation

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 4.9.8.1.1 SR 3.9.5.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ ~~[2800]~~ 3000 gpm.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

CTS

SURVEILLANCE REQUIREMENTS (continued)

		FREQUENCY
SR 4.9.8.1.3 SR 3.9.5.2	Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ (2)

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.5, RHR AND COOLANT CIRCULATION-HIGH WATER LEVEL

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Improved Technical Specification (ITS) Surveillance Requirement (SR) 3.9.5.3 is being added consistent with the current licensing basis to adopt Turkey Point Nuclear Generating Station (PTN) Current Technical Specification (CTS) 4.9.8.1.2, which is the performance of a CHANNEL CALIBRATION on the Residual Heat Removal (RHR) flow indicator.

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

B 3.9 REFUELING OPERATIONS

B 3.9.5 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.

"None"

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 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 the RHR pump to be removed from operation for short durations, under the condition that the boron concentration is not diluted. This conditional stopping of the RHR pump does not result in a challenge to the fission product barrier.

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,

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

c. Indication of reactor coolant temperature.

Turkey Point Unit 3 and Unit 4

Revision XXX

1

BASES

LCO (continued)

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. Management of gas voids is important to RHR System OPERABILITY.

The LCO is modified by a Note that allows the required operating RHR loop to be removed from operation for up to 1 hour per 8 hour period, provided no operations are permitted that would dilute the RCS boron concentration by 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.

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 3.9.7, "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, "Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level." 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 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. 1

BASES

ACTIONS (continued)

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, 2

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 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 3.9.5.1

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.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~REVIEWER'S NOTE~~

~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3

~~]~~

SR 3.9.5.2

RHR System piping and components have the potential to develop voids and pockets of entrained gases. Preventing and managing gas intrusion and accumulation is necessary for proper operation of the RHR loops and may also prevent water hammer, pump cavitation, and pumping of noncondensible gas into the reactor vessel.

Selection of RHR System locations susceptible to gas accumulation is based on a review of system design information, including piping and instrumentation drawings, isometric drawings, plan and elevation drawings, and calculations. The design review is supplemented by system walk downs to validate the system high points and to confirm the location and orientation of important components that can become sources of gas or could otherwise cause gas to be trapped or difficult to remove during system maintenance or restoration. Susceptible locations depend on plant and system configuration, such as stand-by versus operating conditions.

The RHR System is OPERABLE when it is sufficiently filled with water. Acceptance criteria are established for the volume of accumulated gas at susceptible locations. If accumulated gas is discovered that exceeds the acceptance criteria for the susceptible location (or the volume of

BASES

SURVEILLANCE REQUIEMENTS (continued)

accumulated gas at one or more susceptible locations exceeds an acceptance criteria for gas volume at the suction or discharge of a pump), the Surveillance is not met. If the accumulated gas is eliminated or brought within the acceptance criteria limits during performance of the Surveillance, the Surveillance is met and past system OPERABILITY is evaluated under the Corrective Action Program. If it is determined by subsequent evaluation that the RHR System is not rendered inoperable by the accumulated gas (i.e., the system is sufficiently filled with water), the Surveillance may be declared met. Accumulated gas should be eliminated or brought within the acceptance criteria limits.

RHR System locations susceptible to gas accumulation are monitored and, if gas is found, the gas volume is compared to the acceptance criteria for the location. Susceptible locations in the same system flow path which are subject to the same gas intrusion mechanisms may be verified by monitoring a representative sub-set of susceptible locations. Monitoring may not be practical for locations that are inaccessible due to radiological or environmental conditions, the plant configuration, or personnel safety. For these locations alternative methods (e.g., operating parameters, remote monitoring) may be used to monitor the susceptible location. Monitoring is not required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

~~[The 31 day Frequency takes into consideration the gradual nature of gas accumulation in the RHR System piping and the procedural controls governing system operation.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Surveillance Frequency may vary by location susceptible to gas accumulation.

~~REVIEWER'S NOTE~~

~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3

~~]~~

BASES

REFERENCES 1. FSAR, Section ~~[~~5.5.7~~]~~. 6.2.2

U

1 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.5, RHR AND COOLANT CIRCULATION – HIGH WATER LEVEL

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases that reflect the plant-specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

4. Change made to the Improved Technical Specification (ITS) 3.9.5 Bases to add Bases for the added Surveillance Requirement (SR) 3.9.5.3 to the ITS 3.9.5, consistent with the current Technical Specification.

Specific No Significant Hazards Considerations (NSHCs)

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

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 6

ITS 3.9.6 – RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION - LOW WATER LEVEL

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

ITS

A01

L01

REFUELING OPERATIONS

LOW WATER LEVEL

----------NOTES----------
1. All RHR pumps may be removed from operation for ≤ 15 minutes when switching from one train to another provided:
   a. The core outlet temperature is maintained > 10 degrees F below saturation temperature,
   b. No operations are permitted that would cause introduction of coolant into the Reactor Coolant System (RCS) with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1, and
   c. No draining operations to further reduce RCS water volume are permitted.

LIMITING CONDITION FOR OPERATION

LCO 3.9.6

3.9.8.2 Two independent residual heat removal (RHR) loops shall be OPERABLE, and at least one RHR loop shall be in operation*.

APPLICABILITY

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

ACTION:

R.A B.3
R.A. B.4

Close equipment hatch and secure with four bolts and close one door in each air lock.

A02

ACTION A

a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status, or to establish greater than or equal to 23 feet of water above the reactor vessel flange, as soon as possible.

ACTION B

b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

R.A B.1
R.A. B.2
R.A. B.5.1

Required Action (R.A.) B.5.2

or verify each penetration is capable of being closed by an OPERABLE Containment Ventilation Isolation System.

L02

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1

4.9.8.2.1 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 3000 gpm in accordance with the Surveillance Frequency Control Program.

SR 3.9.6.3

4.9.8.2.2 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water in accordance with the Surveillance Frequency Control Program.

SR 3.9.6.2 Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation in accordance with the SFCP.

M01

LCO NOTES 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.

DISCUSSION OF CHANGES
ITS 3.9.6, RHR AND COOLANT CIRCULATION – LOW WATER LEVEL

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) 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. 5.0, "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.

A02 CTS 3.9.8.2 ACTION b requires closure of containment penetrations when no Residual Heat Removal (RHR) trains are in operation. ITS 3.9.6 ACTION B contains the same requirement but lists the equipment hatch and personnel air locks specifically in the ITS Actions. This changes the CTS by specifically listing penetrations to be closed if there are no RHR trains in operation.

The CTS does not list specific penetrations to be closed. The ITS lists some specific penetrations. This change is acceptable because whether specific penetrations are listed or not, the end result is the closure of all penetrations that have the potential to release radioactive gas to the outside atmosphere except for those that are closed by the containment ventilation isolation system. This change is classified as administrative, because it does not result in any changes, besides listing the equipment hatch and personnel air lock.

MORE RESTRICTIVE CHANGES

M01 ITS 3.9.6 contains a Surveillance Requirement (SR) (SR 3.9.6.2) to verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation. CTS 3.9.8.2 does not contain a similar SR. This changes the CTS by adding this SR as part of the PTN conversion to ITS.

Performance of ITS SR 3.9.6.2 ensures that an additional RHR pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. This change is acceptable because the SR ensures non-operating pump is available if required. This change is designated as MORE RESTRICTIVE because an additional SR will be performed that was not previously performed per the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L01 *(Category 1 – Relaxation of LCO Requirements)* ITS 3.9.6 contains a Limiting Condition for Operation (LCO) Note that allows all RHR pumps to be removed from operation for ≤ 15 minutes when switching from one train to another provided:

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

b. No operations are permitted that would cause introduction of coolant into the Reactor Coolant System (RCS) with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1, and

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

CTS 3.9.8.2 does not contain this note. This changes the CTS by adding a Note that allows all the RHR pumps to be removed from operation for a limited period of time with provisions.

The purpose of the proposed Note is to permit the RHR pumps to be removed from operation for ≤ 15 minutes when switching from one train to another. 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 change is acceptable because the LCO requirements continue to ensure that the adequate flow and cooling are maintained consistent with the safety analyses and licensing basis. Operation in this condition is limited and the provisions required ensure there is adequate margin to saturation temperature and limits operations that could potentially decrease the margin. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.9.8.1 ACTION requires a series of Actions when there are no RHR loops in operation. One of those Actions is to close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere. ITS 3.9.5 requires similar Actions (the ITS lists them individually) to close the containment penetrations; however, the ITS also allows those penetrations that are closed by the containment ventilation isolation system to be verified capable of being closed. This changes the CTS by relaxing the requirement to close those penetrations that are isolated by the containment ventilation isolation system.

The CTS requires closing all penetrations that have access from containment to the outside atmosphere because with no RHR loops in operation the potential exist for the coolant to boil and release radioactive gas to the containment atmosphere. The ITS also requires closing those penetrations that would not be automatically shut by the containment ventilation isolation system. Allowing those penetrations to remain open in this condition is acceptable because upon detection of high radiation the containment ventilation isolation system will close those penetrations. 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. In this case the remedial measures are to close penetrations that have the potential to release radioactive gas to the outside atmosphere and, upon detection of high radiation signal, for the containment ventilation isolation system to close any valves that receive the isolation signal. 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

3.9.8.2

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

LCO 3.9.8.2

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

----------NOTES----------

DOC L01

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

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

   b. No operations are permitted that would cause introduction of coolant into the Reactor Coolant System (RCS) with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1, and

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

LCO Footnote *

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

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

ACTIONS

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

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION b B. No RHR loop in operation.	B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
	AND	
	B.2 Initiate action to restore one RHR loop to operation.	Immediately
	AND	
DOC A02	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.5.1 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	

2

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC L02	B.5.2 Verify each penetration is capable of being closed by an OPERABLE Containment ~~Purge and Exhaust~~ Isolation System. (Ventilation)	4 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
SR 4.9.8.2.1	SR 3.9.6.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ ~~[2800]~~ 3000 gpm.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
DOC M01	SR 3.9.6.2	Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	~~[7 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
SR 4.9.8.2.2	SR 3.9.6.3	Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.9.6, RHR AND COOLANT CIRCULATION - LOW WATER LEVEL

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specifications (ISTS) that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

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

"None"

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.

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.

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 two Notes. Note 1 permits the RHR pumps to be removed from operation for ≤ 15 minutes when switching from one train to another. The +cumstances for stopping both RHR pumps are to be limited to situations when the outage time is short [and the core outlet

BASES

LCO (continued)

temperature is maintained > 10 degrees F below saturation temperature]. The Note prohibits boron dilution or draining operations when RHR forced flow is stopped.

Note 2 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. Management of gas voids is important to RHR System OPERABILITY.

Both RHR pumps may be aligned to the Refueling Water Storage Tank to support filling or draining the refueling cavity or for performance of required testing.

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. 1

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. 1

Ventilation

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 3.9.6.1

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.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~----------REVIEWER'S NOTE----------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~----------]~~

SR 3.9.6.2

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. 1
~~[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.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~----------REVIEWER'S NOTE----------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~----------]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.9.6.3

RHR System piping and components have the potential to develop voids and pockets of entrained gases. Preventing and managing gas intrusion and accumulation is necessary for proper operation of the RHR loops and may also prevent water hammer, pump cavitation, and pumping of noncondensible gas into the reactor vessel.

Selection of RHR System locations susceptible to gas accumulation is based on a review of system design information, including piping and instrumentation drawings, isometric drawings, plan and elevation drawings, and calculations. The design review is supplemented by system walk downs to validate the system high points and to confirm the location and orientation of important components that can become sources of gas or could otherwise cause gas to be trapped or difficult to remove during system maintenance or restoration. Susceptible locations depend on plant and system configuration, such as stand-by versus operating conditions.

The RHR System is OPERABLE when it is sufficiently filled with water. Acceptance criteria are established for the volume of accumulated gas at susceptible locations. If accumulated gas is discovered that exceeds the acceptance criteria for the susceptible location (or the volume of accumulated gas at one or more susceptible locations exceeds an acceptance criteria for gas volume at the suction or discharge of a pump), the Surveillance is not met. If the accumulated gas is eliminated or brought within the acceptance criteria limits during performance of the Surveillance, the Surveillance is met and past system OPERABILITY is evaluated under the Corrective Action Program. If it is determined by subsequent evaluation that the RHR System is not rendered inoperable by the accumulated gas (i.e., the system is sufficiently filled with water), the Surveillance may be declared met. Accumulated gas should be eliminated or brought within the acceptance criteria limits.

RHR System locations susceptible to gas accumulation are monitored and, if gas is found, the gas volume is compared to the acceptance criteria for the location. Susceptible locations in the same system flow path which are subject to the same gas intrusion mechanisms may be verified by monitoring a representative sub-set of susceptible locations. Monitoring may not be practical for locations that are inaccessible due to radiological or environmental conditions, the plant configuration, or personnel safety. For these locations alternative methods (e.g., operating parameters, remote monitoring) may be used to monitor the susceptible

BASES

SURVEILLANCE REQUIREMENTS (continued)

location. Monitoring is not required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

~~[The 31 day Frequency takes into consideration the gradual nature of gas accumulation in the RHR System piping and the procedural controls governing system operation.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Surveillance Frequency may vary by location susceptible to gas accumulation.

~~REVIEWER'S NOTE~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~]~~

REFERENCES 1. FSAR, Section ~~[5.5.7]~~ 6.2.2. 4

U 1

JUSTIFICATION FOR DEVIATIONS

ITS 3.9.6 BASES, RHR AND COOLANT CIRCULATION – LOW WATER LEVEL

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases that reflect the plant-specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.9.6, RESIDUAL HEAT REMOVAL (RHR) AND COOLANT CIRCULATION – LOW WATER LEVEL

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 7

Relocated/Deleted Current Technical Specifications (CTS)

- **3.9.3 – Decay Time**
- **3.9.13 – Radiation Monitoring**

ISTS 3.9.3, DECAY TIME

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

~~REFUELING OPERATIONS~~

~~3/4.9.3 DECAY TIME~~

~~LIMITING CONDITION FOR OPERATION~~

~~3.9.3 The reactor shall be subcritical for at least 72 hours.~~

~~APPLICABILITY: During movement of irradiated fuel in the reactor vessel.~~

~~ACTION:~~

~~With the reactor subcritical for less than 72 hours, suspend all operations involving movement of irradiated fuel in the reactor vessel.~~

LA01

~~SURVEILLANCE REQUIREMENTS~~

~~4.9.3 The reactor shall be determined to have been subcritical for at least 72 hours by verification of the date and time of subcriticality prior to movement of irradiated fuel in the reactor vessel.~~

DISCUSSION OF CHANGES
CTS 3/4 9.3, DECAY TIME

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS Requirement to the TRM, UFSAR, ODCM, NQAP, CLRT Program, IST Program, or ISI Program)* Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) 3.9.3 requires the reactor to be subcritical for at least 100 hours during movement or irradiated fuel in the reactor pressure vessel. Improved Technical Specification (ITS) Section 3.9 does not include the requirement 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 Limiting Condition for Operation (LCO) 3.9.3 is to ensure that sufficient time has elapsed to allow radioactive decay of the short-lived fission products in the irradiated fuel consistent with the assumptions used in the fuel handling accident analysis. This change is acceptable because the removed information will be adequately controlled in the TRM. Changes to the TRM are controlled by the provisions of 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as less restrictive removal of detail change because a requirement is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4 9.3, DECAY TIME

There are no specific No Significant Hazards Considerations for this Specification.

ISTS 3.9.13, RADIATION MONITORING

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

~~REFUELING OPERATIONS~~

~~3/4.9.13 RADIATION MONITORING~~

~~LIMITING CONDITION FOR OPERATION~~

~~3.9.13 The Containment Radiation monitors which initiate containment ventilation isolation shall be OPERABLE.~~

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

~~ACTION:~~

~~a) With one or both radiation monitors inoperable, operation may continue provided the containment ventilation isolation valves are maintained closed.~~

R01

~~SURVEILLANCE REQUIREMENTS~~

~~4.9.13 Each Containment Radiation monitor shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST at the frequencies shown in Table 4.3-3.~~

DISCUSSION OF CHANGES
CTS 3/4 9.13, RADIATION MONITORING

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R01 Turkey Point Nuclear Generating Station (PTN) Current Technical Specification (CTS) 3.9.9 provides the requirements for the Containment Ventilation Isolation System to isolate the containment ventilation penetrations on a high radiation signal from the Radiation Monitors required by CTS 3.9.13 during movement of irradiated fuel within containment. The Instrumentation required by these Technical Specifications minimize the release of airborne radiation to the outside atmosphere during a fuel handling accident. However, the fuel handling accident for PTN does not credit automatic closure of containment during the fuel handling accident. The release is assumed to leak to the environment for two hours without filtration. As an additional conservatism, all the fuel rods in a single assembly are assumed to be damaged.

The Radiation Monitors required by CTS 3.9.13 and the Containment Ventilation Isolation system required by CTS 3.9.9 can be relocated out of TS because the structures, systems, or components (SSCs) are not credited during the fuel handling accident.

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

1. The Containment Ventilation Isolation System and the associated Radiation Monitors do not constitute an instrumentation system that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. The Instrumentation associated with the Containment Ventilation Isolation System and the associated Radiation Monitoring Instrumentation are not credited in the Fuel Handling Accident. The Containment Ventilation Isolation System and the associated Radiation Monitoring Specifications do not satisfy criterion 1.

2. The Containment Ventilation Isolation System and the associated Radiation Monitors are not a process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or challenge to the integrity of a fission product barrier. This Technical Specification specifies limits on process variables consistent with the analysis results. These limits, however, do not reflect initial condition assumptions of a Design Basis Accident (DBA). The Containment Ventilation Isolation System and the associated Radiation Monitoring Specifications do not satisfy criterion 2.

3. The Containment Ventilation Isolation System and the associated Radiation Monitors are not an SSC that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The Containment Ventilation Isolation System and the associated Radiation Monitors that operate to automatically isolate containment during a Fuel Handling Accident are not credited in the Fuel Handling Accident analysis to isolate containment. The Fuel Handling Accident assumes no automatic isolation and the release continues over a two-hour period. The Containment Ventilation Isolation System and the associated Radiation Monitoring Specifications do not satisfy criterion 3.

4. The Containment Ventilation Isolation System and the associated Radiation Monitors were found to be non-significant risk contributor to core damage frequency and offsite releases. These indications are not SSCs that operating experience or probabilistic safety assessment has shown to be significant to the public health and safety. These systems are not credited to operate during a Fuel Handling Accident. The Containment Ventilation Isolation System and the associated Radiation Monitoring Specifications do not meet criterion 4.

Because the selection criteria have not been satisfied, the Containment Ventilation Isolation System and the associated Radiation Monitors Limiting Condition for Operation (LCO) and Surveillances may be relocated to licensee-controlled documents outside the Technical Specifications. The Containment Ventilation Isolation System and the associated Radiation Monitoring Specification will be relocated to the Technical Requirements Manual (TRM). Changes to the TRM will be controlled by the provisions of 10 CFR 50.59. This change is designated as relocation because the Specification did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and will be 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 9.13, RADIATION MONITORING

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 8

Improved Standard Technical Specifications (ISTS) Not Adopted in the Turkey Point ITS

- **3.9.2 – Unborated Water Source Isolation Valves**

ISTS 3.9.2, UNBORATED WATER SOURCE ISOLATION VALVES

Improved Standard Technical Specifications (ISTS) 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.

1

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

1

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 OR In accordance with the Surveillance Frequency Control Program]

JUSTIFICATION FOR DEVIATIONS
ISTS 3.9.2, UNBORATED WATER SOURCE ISOLATION VALVES

1. Improved Standard Technical Specification (ISTS) 3.9.2, "Unborated Water Source Isolation Valves," is not being adopted because Turkey Point Nuclear Generating Station (PTN) has analyzed a boron dilution event in MODE 6. Therefore, ISTS 3.9.2 is not included in the Improved Technical Specifications (ITS).

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

1

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).

1

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.

1

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

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.2

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 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.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

[REVIEWER'S NOTE
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
]

REFERENCES 1. FSAR, Section [15.2.4].

2. NUREG-0800, Section 15.4.6.

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

1. Improved Standard Technical Specification (ISTS) 3.9.2 Bases, "Unborated Water Source Isolation Valves," is not included in the Turkey Point Nuclear Generating Station (PTN) Improved Technical Specifications (ITS) because ISTS 3.9.2 has not been included in the PTN ITS.