BASES

ACTIONS (continued)

Inoperable MFRVs, that are closed or isolated, must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls to ensure that the valves are closed or isolated.

C.1 and C.2

MFRV

With one ~~associated~~ bypass valve in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within ~~[~~72~~]~~ hours. When these valves are closed or isolated, they are performing their required safety function. 3 2

The ~~[~~72~~]~~ hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The ~~[~~72~~]~~ hour Completion Time is reasonable, based on operating experience. 2 2

MFRV

Inoperable ~~associated~~ bypass valves that are closed or isolated must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated. 3

D.1

one or more; s inoperable

With two ~~inoperable~~ valves in ~~the same~~ flow path, there may be no redundant system to operate automatically and perform the required safety function. Although the containment can be isolated with the failure of two valves in parallel in the same flow path, the double failure can be an indication of a common mode failure in the valves of this flow path, and as such, is treated the same as a loss of the isolation capability of this flow path. Under these conditions, ~~affected~~ valve~~s~~ in each flow path must be restored to OPERABLE status, or the affected flow path isolated within 8 hours. This action returns the system to the condition where at least one valve in each flow path is performing the required safety function. The 8 hour Completion Time is reasonable, based on operating experience, to complete the actions required to close the MFIV or MFRV, or otherwise isolate the affected flow path. 3

at least one

BASES

ACTIONS (continued)

E.1 and E.2

MFRV
If the MFIV(s) and MFRV(s) and the ~~associated~~ bypass valve(s) cannot be restored to OPERABLE status, or closed, or isolated within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours [, and in MODE 4 within 12 hours]. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. 3 2

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

MFRV
This SR verifies that the closure time of each MFIV, MFRV, and ~~[associated~~ bypass valve] is within the limit given in Reference 2 and is within that assumed in the accident and containment analyses. This SR also verifies the valve closure time is in accordance with the Inservice Testing Program. This SR is normally performed upon returning the unit to operation following a refueling outage. These valves should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. This is consistent with the ASME Code (Ref. 3), quarterly stroke requirements during operation in MODES 1 and 2. 2

The Frequency for this SR is in accordance with the Inservice Testing Program.

SR 3.7.3.2

MFRV
This SR verifies that each MFIV, MFRV, and ~~[associated~~ bypass valves] can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage. 2

~~[The Frequency for this SR is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.~~ 5

~~OR~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

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.~~
~~--]~~ 6

REFERENCES

1. U FSAR, Section [10.4.7]. 1 2

2. ~~[Technical Requirements Manual.]~~ UFSAR, Section 7.3. 2

3. ASME Code for Operation and Maintenance of Nuclear Power Plants.

B 3.7 PLANT SYSTEMS

B 3.7.3 Main Feedwater Isolation Valves (MFIVs) , ~~and~~ Main Feedwater ~~Regulation~~ Regulating Valves (MFRVs) [and ~~Associated~~ MFRV Bypass Valves] 1 2

BASES

BACKGROUND

The MFIVs isolate main feedwater (MFW) flow to the secondary side of the steam generators following a high energy line break (HELB). The safety related function of the MFRVs is to provide the second isolation of MFW flow to the secondary side of the steam generators following an HELB. Closure of the MFIVs ~~and associated bypass valves~~ or MFRVs and ~~associated~~ MFRV bypass valves terminates flow to the steam generators, terminating the event for feedwater line breaks (FWLBs) occurring upstream of the MFIVs or MFRVs. The consequences of events occurring in the main steam lines or in the MFW lines downstream from the MFIVs will be mitigated by their closure. Closure of the MFIVs ~~and associated bypass valves~~, or MFRVs and ~~associated~~ MFRV bypass valves, effectively terminates the addition of feedwater to an affected steam generator, limiting the mass and energy release for steam line breaks (SLBs) or FWLBs inside containment, and reducing the cooldown effects for SLBs. 3 3

The MFIVs ~~and associated bypass valves~~, or MFRVs and ~~associated~~ MFRV bypass valves, isolate the nonsafety related portions from the safety related portions of the system. In the event of a secondary side pipe rupture inside containment, the valves limit the quantity of high energy fluid that enters containment through the break, and provide a pressure boundary for the controlled addition of auxiliary feedwater (AFW) to the intact loops. 3

One MFIV ~~and associated bypass valve~~, and one MFRV and its ~~associated~~ MFRV bypass valve, are located on each MFW line, outside but close to containment. The MFIVs , MFRVs, and MFRV~~s~~ bypass valves are located upstream of the AFW injection point so that AFW may be supplied to the steam generators following MFIV or MFRV closure. The piping volume from these valves to the steam generators must be accounted for in calculating mass and energy releases, and refilled prior to AFW reaching the steam generator following either an SLB or FWLB. 3 1

The MFIVs ~~and associated bypass valves~~, ~~and~~ MFRVs , and ~~associated~~ MFRV bypass valves, close on receipt of a T_{avg} - Low coincident with reactor trip (P-4) , safety injection, or steam generator water level ~~-~~high - high signal. They may also be actuated manually. In addition to the MFIVs ~~and associated bypass valves~~, and the MFRVs and ~~associated~~ MFRV bypass valves, a check valve ~~inside~~ outside containment is available. The check valve isolates the feedwater line, penetrating containment, and ensures that the consequences of events do not exceed the capacity of the containment heat removal systems. 3 1 3 1

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BASES

BACKGROUND (continued)

A description of the MFIVs and MFRVs is found in ~~the~~ U FSAR, 1
Section ~~[~~10.4.7~~]~~ (Ref. 1). 2

APPLICABLE SAFETY ANALYSES

The design basis of the MFIVs and MFRVs is established by the analyses for the large SLB. It is also influenced by the accident analysis for the large FWLB. Closure of the MFIVs ~~and associated bypass valves~~, or MFRVs and ~~associated~~ MFRV bypass valves, may also be relied on to terminate an SLB for core response analysis and excess feedwater event upon the receipt of a steam generator water level ~~-~~high - high signal or a feedwater isolation signal on high steam generator level. 3 1

Failure of an MFIV, MFRV, or the ~~associated~~ MFRV bypass valves to close following an SLB or FWLB can result in additional mass and energy being delivered to the steam generators, contributing to cooldown. This failure also results in additional mass and energy releases following an SLB or FWLB event. 3

The MFIVs , ~~and~~ MFRVs , and MFRV bypass valves satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii). 4

LCO

This LCO ensures that the MFIVs, MFRVs, and ~~their associated~~ MFRV bypass valves will isolate MFW flow to the steam generators, following an FWLB or main steam line break. These valves will ~~also~~ isolate the nonsafety related portions from the safety related portions of the system. 3 4

This LCO requires that ~~[~~four~~]~~ MFIVs , ~~and associated bypass valves and~~ ~~[four]~~ MFRVs ~~[and associated~~ four MFRV bypass valves~~]~~ be OPERABLE. The MFIVs , ~~and~~ MFRVs and the ~~associated~~ MFRV bypass valves are considered OPERABLE when isolation times are within limits and they close on an isolation actuation signal. 2 3

Failure to meet the LCO requirements can result in additional mass and energy being released to containment following an SLB or FWLB inside containment. If a feedwater isolation signal on high steam generator level is relied on to terminate an excess feedwater flow event, failure to meet the LCO may result in the introduction of water into the main steam lines.

APPLICABILITY

The MFIVs , ~~and~~ MFRVs and the ~~associated~~ MFRV bypass valves must be OPERABLE whenever there is significant mass and energy in the Reactor Coolant System and steam generators. This ensures that, in the event of an HELB, a single failure cannot result in the blowdown of more than one steam generator. In MODES 1, 2, ~~[~~and 3~~]~~, the MFIVs , ~~and~~ MFRVs and the ~~associated~~ MFRV bypass valves are required to be OPERABLE to limit the amount of available fluid that could be added to containment in the case of a secondary system pipe break inside containment. When the valves are closed ~~and de-activated~~ or isolated by a closed manual valve, they are already performing their safety function. 3 2 3 3

BASES

APPLICABILITY (continued)

In MODES 4, 5, and 6, steam generator energy is low. Therefore, the MFIVs, MFRVs, and the ~~associated~~ MFRV bypass valves are normally closed since MFW is not required. 3

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each valve. 3

INSERT 1

A.1 and A.2

With one MFIV in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within ~~[~~72~~]~~ hours. When these valves are closed or isolated, they are performing their required safety function. 2

The ~~[~~72~~]~~ hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The ~~[~~72~~]~~ hour Completion Time is reasonable, based on operating experience. 2 2

Inoperable MFIVs that are closed or isolated must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated.

B.1 and B.2

With one MFRV in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within ~~[~~72~~]~~ hours. When these valves are closed or isolated, they are performing their required safety function. 2

The ~~[~~72~~]~~ hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The ~~[~~72~~]~~ hour Completion Time is reasonable, based on operating experience. 2 2

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3 **INSERT 1**

This includes separate Condition entry for two valves in the same flow path being inoperable. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable valve. Complying with the Required Actions may allow for continued operation, and subsequent inoperable valves are governed by subsequent Condition entry and application of associated Required Actions.

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BASES

ACTIONS (continued)

Inoperable MFRVs, that are closed or isolated, must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls to ensure that the valves are closed or isolated.

C.1 and C.2

MFRV

With one ~~associated~~ bypass valve in one or more flow paths inoperable, 3
action must be taken to restore the affected valves to OPERABLE status,
or to close or isolate inoperable affected valves within ~~[~~72~~]~~ hours. When 2
these valves are closed or isolated, they are performing their required
safety function.

The ~~[~~72~~]~~ hour Completion Time takes into account the redundancy 2
afforded by the remaining OPERABLE valves and the low probability of
an event occurring during this time period that would require isolation of
the MFW flow paths. The ~~[~~72~~]~~ hour Completion Time is reasonable, 2
based on operating experience.

MFRV

Inoperable ~~associated~~ bypass valves that are closed or isolated must be 3
verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated.

D.1

one or more s inoperable

With two ~~inoperable~~ valves in ~~the same~~ flow path, there may be no redundant system to operate automatically and perform the required safety function. Although the containment can be isolated with the failure of two valves in parallel in the same flow path, the double failure can be an indication of a common mode failure in the valves of this flow path, and as such, is treated the same as a loss of the isolation capability of this flow path. Under these conditions, at least one ~~affected~~ valve~~s~~ in each flow path must be restored to OPERABLE status, or the affected flow path isolated within 8 hours. This action returns the system to the condition where at least one valve in each flow path is performing the required safety function. The 8 hour Completion Time is reasonable, based on operating experience, to complete the actions required to close the MFIV or MFRV, or otherwise isolate the affected flow path. 3

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BASES

ACTIONS (continued)

E.1 and E.2

MFRV

If the MFIV(s) and MFRV(s) and the ~~associated~~ bypass valve(s) cannot be restored to OPERABLE status, or closed, or isolated within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours ~~[~~, and in MODE 4 within 12 hours~~]~~. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. 3 2

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

MFRV

This SR verifies that the closure time of each MFIV, MFRV, and ~~[associated~~ bypass valve~~]~~ is within the limit given in Reference 2 and is within that assumed in the accident and containment analyses. This SR also verifies the valve closure time is in accordance with the Inservice Testing Program. This SR is normally performed upon returning the unit to operation following a refueling outage. These valves should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. This is consistent with the ASME Code (Ref. 3), quarterly stroke requirements during operation in MODES 1 and 2. 2

The Frequency for this SR is in accordance with the Inservice Testing Program.

SR 3.7.3.2

MFRV

This SR verifies that each MFIV, MFRV, and ~~[associated~~ bypass valves~~]~~ can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage. 2

~~[The Frequency for this SR is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.~~

~~OR~~ 5

BASES

SURVEILLANCE REQUIREMENTS (continued)

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.~~
~~--]~~ 6

REFERENCES

1. U FSAR, Section [10.4.7]. 1 2

2. ~~[Technical Requirements Manual.]~~ UFSAR, Section 7.3. 2

3. ASME Code for Operation and Maintenance of Nuclear Power Plants.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.7.3 BASES, MAIN FEEDWATER ISOLATION VALVES (MFIVs), MAIN FEEDWATER REGULATING VALVES (MFRVs) AND MFRV BYPASS VALVES

1. 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.

2. The ISTS Bases 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 be consistent with changes made to the Specification.

4. Editorial changes made for enhanced clarity/consistency.

5. ISTS SR 3.7.3.2 and Bases (ITS SR 3.7.3.2) provides two options for controlling the Frequency of the Surveillance Requirement. SQN is proposing to control the Surveillance Frequency under the Surveillance Frequency Control Program. Additionally, the Frequency description which is being removed will be included in the Surveillance Frequency Control Program.

6. 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.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.3, MAIN FEEDWATER ISOLATION VALVES (MFIVs), MAIN FEEDWATER REGULATING VALVES (MFRVs) AND MFRV BYPASS VALVES

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

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ATTACHMENT 4

ITS 3.7.4, ATMOSPHERIC RELIEF VALVES

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

Add proposed ITS 3.7.4

M01

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Add proposed ITS 3.7.4

M01

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DISCUSSION OF CHANGES
ITS 3.7.4, ATMOSPHERIC RELIEF VALVES (ARVs)

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

M01 The Sequoyah Nuclear Plant (SQN) Current Technical Specifications (CTS) do not contain a requirement for atmospheric relief valves. ITS 3.7.4 specifies the requirements for the atmospheric relief valves, consistent with the requirements of ISTS 3.7.4, "Atmospheric Dump Valves." This changes the CTS by incorporating the requirements of ITS 3.7.4, "Atmospheric Relief Valves."

The purpose of ITS 3.7.4 requirements is to ensure that the atmospheric relief valves are available to establish sufficient subcooling in the RCS following a Steam Generator Tube Rupture (SGTR). This change is acceptable because the atmospheric relief valves provide a means for the operator to sufficiently subcool the RCS following a SGTR accompanied by a loss of offsite power. This change is considered more restrictive because it is adding a new requirement to the Technical Specifications.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

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

CTS

ARVs ~~ADVs~~ 1
3.7.4

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Relief ~~Dump~~ Valves (ARVs ~~ADVs~~) 1

DOC M01 LCO 3.7.4 Four ARV ~~[Three] ADV~~ lines shall be OPERABLE. 2 1

DOC M01 APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
DOC M01	A. INSERT 1 ~~One required ADV line inoperable~~.	A.1	Restore ARV ~~required ADV~~ lines to OPERABLE status.	72 hours ~~7 days~~	3 1 4
DOC M01	B. INSERT 2 ~~Two or more required ADV lines inoperable~~.	B.1	Restore all ARV ~~but one ADV~~ lines to OPERABLE status.	24 hours	3 1 4
DOC M01	C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours	
		AND			
		C.2	Be in MODE 4 without reliance upon steam generator for heat removal.	~~[~~24~~]~~ hours	2

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4 **INSERT 1**

DOC M01

One or more ARV line(s) inoperable due to one train of Auxiliary Control Air System (ACAS) nonfunctional.

4 **INSERT 2**

DOC M01

One or more ARV line(s) inoperable for reasons other than Condition A.

CTS

ARVs ~~ADVs~~ 1
3.7.4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY	
DOC M01 SR 3.7.4.1	Verify one complete cycle of each ARV ~~ADV~~.	~~[[18] months~~ ~~OR~~ In accordance with the Inservice Testing ~~Surveillance Frequency Control~~ Program ~~]~~ stet	1 6 ~~6~~ MEH-001
~~SR 3.7.4.2~~	~~[Verify one complete cycle of each ADV block valve.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	2

CTS

ARVs ~~ADVs~~ 1
3.7.4

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Relief ~~Dump~~ Valves (ARVs ~~ADVs~~) 1

DOC M01 LCO 3.7.4 Four ARV ~~[Three] ADV~~ lines shall be OPERABLE. 2 1

DOC M01 APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC M01 A. INSERT 1 ~~One required ADV line inoperable~~.	A.1 Restore ~~required ADV~~ ARV lines to OPERABLE status.	~~7 days~~ 72 hours 3 1 4
DOC M01 B. INSERT 2 ~~Two or more required ADV lines inoperable~~.	B.1 Restore all ~~but one ADV~~ ARV lines to OPERABLE status.	24 hours 3 1 4
DOC M01 C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4 without reliance upon steam generator for heat removal.	6 hours ~~[~~24~~]~~ hours 2

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4 **INSERT 1**

DOC M01

One or more ARV line(s) inoperable due to one train of Auxiliary Control Air System (ACAS) nonfunctional.

4 **INSERT 2**

DOC M01

One or more ARV line(s) inoperable for reasons other than Condition A.

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CTS

ARVs ~~ADVs~~ 1
3.7.4

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
DOC M01 SR 3.7.4.1	Verify one complete cycle of each ARV ~~ADV~~.	~~[[18] months~~ ~~OR~~ In accordance with the Inservice Testing ~~Surveillance Frequency Control~~ Program ~~]~~
~~SR 3.7.4.2~~	~~[Verify one complete cycle of each ADV block valve.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~

1 6 stet MEH-001 2

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JUSTIFICATION FOR DEVIATIONS
ITS 3.7.4, ATMOSPHERIC RELIEF VALVES (ARVs)

1. ISTS 3.7.4, "Atmospheric Dump Valves" title has been changed to "Atmospheric Relief Valves" to reflect the description name used at Sequoyah Nuclear Plant. Additionally, the acronyms "ADVs" and "ADV" have been changed to "ARVs" and "ARV," respectively.

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 term "required" has been removed from ISTS 3.7.4 ACTIONS A and B since there are four atmospheric relief valves and all four valves are required per ITS LCO 3.7.4.

4. The SQN UFSAR accident analysis describes the use of ARVs in the mitigation of a Steam Generator Tube Rupture event concurrent with a loss of offsite power. The accident analysis assumes the steam generator ARVs associated with the unaffected steam generators are available to cool down the RCS and terminate the primary to secondary leak.

   ISTS 3.7.4 ACTION A requires the restoration of the required ADV line to OPERABLE status in 7 days when one required ADV line is inoperable. ISTS 3.7.4 ACTION B requires the restoration of all but one ADV lines to OPERABLE status in 24 hours when two or more ADV lines are inoperable. Twenty four hours reflects a Completion Time commensurate with a loss of safety function while providing some time to effect repair and considering the low probability of an event occurring during the time that would require the ADV lines. ITS 3.7.4 ACTION A requires the restoration of the affected ARV lines to OPERABLE status within 72 hours when one or more ARV line(s) are inoperable due to one train of Auxiliary Control Air System (ACAS) being nonfunctional. ITS 3.7.4 ACTION B requires restoration of all ARV lines to OPERABLE status within 24 hours when one or more ARV lines are inoperable for reasons other than Conditon A.

   The ACAS system supplies essential air to the ARVs on loss of offsite power. The ACAS system consists of two trains. Train A supplies essential air to steam generator 1 and 3 ARVs and train B supplies essential air to steam generator 2 and 4 ARVs. On a loss of one train of essential air to the ARVs, alternate means are available to operate the affected ARVs via a manual loading station and relief handwheels. The use of the alternate means for operating the ARVs allows the ARVs to be operated in the mitigation of a steam generator tube rupture event concurrent with a loss of offsite power. SQN has established station procedures and training for operation of the ARVs outside the control room. The 72 hour Completion Time is acceptable because alternate means to operate the ARVs are available to provide compensatory measures in response to the degraded condition in order to minimize risk associated with continued operation, while providing time to repair the nonfunctional ACAS train.

5. 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.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.7.4, ATMOSPHERIC RELIEF VALVES (ARVs)

6. ISTS SR 3.7.4.1 provides two options for controlling the Frequency of the Surveillance Requirement. SQN currently tests the ARVs at an 18 month frequency. SQN is proposing to maintain the 18 month testing frequency and control the ARV Surveillance Frequency under the Surveillance Frequency Control Program ~~Inservice Testing Program. The ARVs are ASME Section XI Code Class valves at SQN and as such are tested under the SQN ASME Section XI Inservice Testing Program~~.

MEH-001

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

B 3.7 PLANT SYSTEMS

B 3.7.4 Atmospheric ~~Dump~~ Relief Valves (~~ADVs~~ ARVs) 1

BASES

BACKGROUND

The ~~ADVs~~ ARVs provide a method for cooling the unit to residual heat removal (RHR) entry conditions should the preferred heat sink via the Steam ~~Bypass~~ Dump System to the condenser not be available, as discussed in the U FSAR, Section ~~[~~10.3~~]~~ (Ref. 1). This is done in conjunction with the Auxiliary Feedwater System providing cooling water from the condensate storage tank (CST). The ~~ADVs~~ ARVs may also be required to meet the ~~design cooldown rate during a normal~~ cooldown when steam pressure drops too low for maintenance of a vacuum in the condenser to permit use of the Steam Dump System. 1 2 2 3 1

One ~~ADV~~ ARV line for each of the ~~[~~four~~]~~ steam generators is provided. Each ~~ADV~~ ARV line consists of one ~~ADV~~ ARV ~~and an associated block valve~~. 1 3

~~The ADVs are provided with upstream block valves to permit their being tested at power, and to provide an alternate means of isolation~~. The ~~ADVs~~ ARVs are equipped with pneumatic controllers to permit control of the cooldown rate. INSERT 1 2 1 2

~~The ADVs are usually provided with a pressurized gas supply of bottled nitrogen that, on a loss of pressure in the normal instrument air supply, automatically supplies nitrogen to operate the ADVs. The nitrogen supply is sized to provide the sufficient pressurized gas to operate the ADVs for the time required for Reactor Coolant System cooldown to RHR entry conditions.~~ 2

A description of the ~~ADVs~~ ARVs is found in Reference 1. The ~~ADVs~~ ARVs are OPERABLE with ~~only~~ a DC power source and plant safety grade air supply available. In addition, handwheels are provided for ~~local~~ manual operation. INSERT 2 1

APPLICABLE SAFETY ANALYSES

The design basis of the ~~ADVs~~ ARVs is established by the capability to cool the unit to RHR entry conditions. INSERT 3 ~~The design rate of [75]°F per hour is applicable for two steam generators, each with one ADV. This rate is adequate to cool the unit to RHR entry conditions with only one steam generator and one ADV, utilizing the cooling water supply available in the CST.~~ 4

In the accident analysis presented in Reference ~~1~~ 2, the ~~ADVs~~ ARVs are assumed to be used by the operator to cool down the unit to RHR entry conditions for accidents accompanied by a loss of offsite power. INSERT 4 ~~Prior to operator actions to cool down the unit, the ADVs and main steam safety valves (MSSVs) are assumed to operate automatically to relieve steam and maintain the steam generator pressure below the design value. For the recovery from a steam generator tube rupture (SGTR) event, the~~ 4

2 **INSERT 1**

The air supplies to the ARVs are from two trains from the plant safety grade Auxiliary Control Air System (ACAS). ACAS train A supplies air to ARVs for steam generators 1 and 3 and train B supplies air to ARVs for steam generators 2 and 4. The ARVs receive the necessary electrical power from the 125 volt vital battery system.

2 **INSERT 2**

of ARVs for steam generators 1 and 4. Air cylinders connected at control stations outside containment provide an alternate means of operation of the ARVs for steam generators 2 and 3.

2 **INSERT 3**

The ARVs, since their set pressure is slightly lower than the safety valves, prevent excessive lifting of the safety valves. Only two ARVs are required for plant cool down following any credible event.

4 **INSERT 4**

In Reference 3 (SGTR), the ARVs are assumed to be available following a steam generator tube rupture accompanied by a loss of offsite power. The ARVs allow the operator to establish sufficient subcooling in the RCS so that the primary system will remain subcooled after the RCS pressure is decreased to stop primary to secondary break flow into the ruptured steam generator. Four ARVs are required to be OPERABLE to allow operators to initiate the RCS cooldown, following a steam generator tube rupture, using the ARVs on the intact steam generators. This cooldown supports the termination of break flow within the required time specified in the accident analysis to prevent steam generator overfill.

 1

BASES

APPLICABLE SAFETY ANALYSES (continued)

~~operator is also required to perform a limited cooldown to establish adequate subcooling as a necessary step to terminate the primary to secondary break flow into the ruptured steam generator.~~ The time required to terminate the primary to secondary break flow for an SGTR is more critical than the time required to cool down to RHR conditions for this event and also for other accidents. Thus, the SGTR is the limiting event for the ARVs ~~ADVs~~. ~~The number of ADVs required to be OPERABLE to satisfy the SGTR accident analysis requirements depends upon the number of unit loops and consideration of any single failure assumptions regarding the failure of one ADV to open on demand.~~ 4 1 5

~~The ADVs are equipped with block valves in the event an ADV spuriously fails to open or fails to close during use.~~ 1

The ARVs ~~ADVs~~ satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

Four ARV ~~[Three] ADV~~ lines are required to be OPERABLE. One ARV ~~ADV~~ line is required from each of four ~~[three]~~ steam generators to ensure that at least three ~~one~~ ARVs are ~~ADV line is~~ available to conduct a unit cooldown to establish sufficient subcooling in the RCS following an SGTR, in which one steam generator becomes unavailable~~, accompanied by a single, active failure of a second ADV line on an unaffected steam generator~~. ~~The block valves must be OPERABLE to isolate a failed open ADV line. A closed block valve does not render it or its ADV line inoperable if operator action time to open the block valve is supported in the accident analysis~~. 1 3 1 5 1

INSERT 5

Failure to meet the LCO can result in the inability to ~~cool the unit to RHR entry conditions following an event in which~~ the condenser is unavailable for use with the Steam Dump ~~Bypass~~ System. 2

An ARV ~~ADV~~ is considered OPERABLE when it is capable of providing controlled relief of the main steam flow and capable of fully opening and closing from the main control room ~~on demand~~. 1

APPLICABILITY

In MODES 1, 2, and 3, and in MODE 4, when a steam generator is being relied upon for heat removal, the ARVs ~~ADVs~~ are required to be OPERABLE. 1

In MODE 5 or 6, an SGTR is not a credible event.

ACTIONS

A.1

INSERT 6

~~With one required ADV line inoperable, action must be taken to restore OPERABLE status within 7 days. The 7 day Completion Time allows for the redundant capability afforded by the remaining OPERABLE ADV lines, a nonsafety grade backup in the Steam Bypass System, and MSSVs.~~ 6

2 **INSERT 5**

cooldown the RCS to establish sufficient subcooling and prevent steam generator overfill following the steam generator rupture when

6 **INSERT 6**

With one or more ARV lines inoperable due to one train of ACAS nonfunctional, action must be taken to restore the ACAS train to functional status within 72 hours. The 72 hour Completion Time is reasonable to repair the nonfunctional ACAS train, based on the availability of the remaining OPERABLE ARV lines, the alternate means to control the inoperable ARVs and the low probability of an event occurring during the time ACAS train is nonfunctional. Alternate means of operation include valve reach rod handwheels and backup air bottles at the control stations outside containment.

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BASES

ACTIONS (continued)

B.1

With ~~two~~ one or more ~~ADV~~ ARV lines inoperable for reasons other than Condition A, action must be taken to restore all ~~but one ADV~~ ARV lines to OPERABLE status. ~~Since the block valve can be closed to isolate an ADV, some repairs may be possible with the unit at power.~~ The 24 hour Completion Time is reasonable to repair inoperable ~~ADV~~ ARV lines, based on the availability of the Steam ~~Bypass~~ Dump System and MSSVs, and the low probability of an event occurring during this period that would require the ~~ADV~~ ARV lines. 6 1 2

C.1 and C.2

If the ~~ADV~~ ARV lines cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4, without reliance upon steam generator for heat removal, within ~~[~~24~~]~~ hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. 1 3

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

To perform a controlled cooldown of the RCS, the ~~ADVs~~ ARVs must be able to be opened ~~either~~ remotely ~~or locally~~ and throttled through their full range. This SR ensures that the ~~ADVs~~ ARVs are tested through a full control cycle at least once per fuel cycle. Performance of inservice testing or use of an ~~ADV~~ ARV during a unit cooldown may satisfy this requirement. ~~[Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. The Frequency is acceptable from a reliability standpoint.~~ 2 1 7

~~OR~~

stet The Surveillance Frequency is controlled under the ~~Surveillance Frequency Control~~ ~~Inservice Testing~~ Program. ~~7~~ MEH-001

~~-----------------------------------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.~~
~~--]~~ 8

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[SR 3.7.4.2~~

~~The function of the block valve is to isolate a failed open ADV. Cycling the block valve both closed and open demonstrates its capability to perform this function. Performance of inservice testing or use of the block valve during unit cooldown may satisfy this requirement. [Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. The Frequency is acceptable from a reliability standpoint.~~ 6

~~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.~~ 8
~~---]]~~

REFERENCES

1. U FSAR, Section ~~[~~10.3~~]~~. 2 3

2. UFSAR, Chapter 15

3. UFSAR, Section 15.4.3 2

B 3.7 PLANT SYSTEMS

B 3.7.4 Atmospheric Relief ~~Dump~~ Valves (ARVs ~~ADVs~~) 1

BASES

BACKGROUND

The ARVs ~~ADVs~~ provide a method for cooling the unit to residual heat removal (RHR) entry conditions should the preferred heat sink via the Steam Dump ~~Bypass~~ System to the condenser not be available, as discussed in the UFSAR, Section ~~[~~10.3~~]~~ (Ref. 1). This is done in conjunction with the Auxiliary Feedwater System providing cooling water from the condensate storage tank (CST). The ARVs ~~ADVs~~ may also be required to meet the ~~design cooldown rate during a normal~~ cooldown when steam pressure drops too low for maintenance of a vacuum in the condenser to permit use of the Steam Dump System. 1 2 2 3 1

One ARV ~~ADV~~ line for each of the ~~[~~four~~]~~ steam generators is provided. Each ARV ~~ADV~~ line consists of one ARV ~~ADV and an associated block valve~~. 1 3

~~The ADVs are provided with upstream block valves to permit their being tested at power, and to provide an alternate means of isolation~~. The ARVs ~~ADVs~~ are equipped with pneumatic controllers to permit control of the cooldown rate. INSERT 1 2 1 2

~~The ADVs are usually provided with a pressurized gas supply of bottled nitrogen that, on a loss of pressure in the normal instrument air supply, automatically supplies nitrogen to operate the ADVs. The nitrogen supply is sized to provide the sufficient pressurized gas to operate the ADVs for the time required for Reactor Coolant System cooldown to RHR entry conditions.~~ 2

A description of the ARVs ~~ADVs~~ is found in Reference 1. The ARVs ~~ADVs~~ are OPERABLE with ~~only~~ a DC power source and plant safety grade air supply available. In addition, handwheels are provided for ~~local~~ manual operation. INSERT 2 1

APPLICABLE SAFETY ANALYSES

The design basis of the ARVs ~~ADVs~~ is established by the capability to cool the unit to RHR entry conditions. INSERT 3 ~~The design rate of [75]°F per hour is applicable for two steam generators, each with one ADV. This rate is adequate to cool the unit to RHR entry conditions with only one steam generator and one ADV, utilizing the cooling water supply available in the CST.~~ 4

In the accident analysis presented in Reference 2 ~~1~~, the ARVs ~~ADVs~~ are assumed to be used by the operator to cool down the unit to RHR entry conditions for accidents accompanied by a loss of offsite power. INSERT 4 ~~Prior to operator actions to cool down the unit, the ADVs and main steam safety valves (MSSVs) are assumed to operate automatically to relieve steam and maintain the steam generator pressure below the design value. For the recovery from a steam generator tube rupture (SGTR) event, the~~ 4

2 **INSERT 1**

The air supplies to the ARVs are from two trains from the plant safety grade Auxiliary Control Air System (ACAS). ACAS train A supplies air to ARVs for steam generators 1 and 3 and train B supplies air to ARVs for steam generators 2 and 4. The ARVs receive the necessary electrical power from the 125 volt vital battery system.

2 **INSERT 2**

of ARVs for steam generators 1 and 4. Air cylinders connected at control stations outside containment provide an alternate means of operation of the ARVs for steam generators 2 and 3.

2 **INSERT 3**

The ARVs, since their set pressure is slightly lower than the safety valves, prevent excessive lifting of the safety valves. Only two ARVs are required for plant cool down following any credible event.

4 **INSERT 4**

In Reference 3 (SGTR), the ARVs are assumed to be available following a steam generator tube rupture accompanied by a loss of offsite power. The ARVs allow the operator to establish sufficient subcooling in the RCS so that the primary system will remain subcooled after the RCS pressure is decreased to stop primary to secondary break flow into the ruptured steam generator. Four ARVs are required to be OPERABLE to allow operators to initiate the RCS cooldown, following a steam generator tube rupture, using the ARVs on the intact steam generators. This cooldown supports the termination of break flow within the required time specified in the accident analysis to prevent steam generator overfill.

BASES

APPLICABLE SAFETY ANALYSES (continued)

~~operator is also required to perform a limited cooldown to establish adequate subcooling as a necessary step to terminate the primary to secondary break flow into the ruptured steam generator.~~ The time required to terminate the primary to secondary break flow for an SGTR is more critical than the time required to cool down to RHR conditions for this event and also for other accidents. Thus, the SGTR is the limiting event for the ARVs ~~ADVs~~. ~~The number of ADVs required to be OPERABLE to satisfy the SGTR accident analysis requirements depends upon the number of unit loops and consideration of any single failure assumptions regarding the failure of one ADV to open on demand.~~ 4 1 5

~~The ADVs are equipped with block valves in the event an ADV spuriously fails to open or fails to close during use.~~ 1

The ARVs ~~ADVs~~ satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

Four ARV ~~[Three] ADV~~ lines are required to be OPERABLE. One ARV ~~ADV~~ line is required from each of four ~~[three]~~ steam generators to ensure that at least three ~~one~~ ARV ~~ADV~~ lines are ~~is~~ available to conduct a unit cooldown to establish sufficient subcooling in the RCS following an SGTR, in which one steam generator becomes unavailable~~, accompanied by a single, active failure of a second ADV line on an unaffected steam generator~~. ~~The block valves must be OPERABLE to isolate a failed open ADV line. A closed block valve does not render it or its ADV line inoperable if operator action time to open the block valve is supported in the accident analysis~~. 1 3 1 5 1

INSERT 5

Failure to meet the LCO can result in the inability to ~~cool the unit to RHR entry conditions following an event in which~~ the condenser is unavailable for use with the Steam Dump ~~Bypass~~ System. 2

An ARV ~~ADV~~ is considered OPERABLE when it is capable of providing controlled relief of the main steam flow and capable of fully opening and closing from the main control room ~~on demand~~. 1

APPLICABILITY

In MODES 1, 2, and 3, and in MODE 4, when a steam generator is being relied upon for heat removal, the ARVs ~~ADVs~~ are required to be OPERABLE. 1

In MODE 5 or 6, an SGTR is not a credible event.

ACTIONS

A.1

INSERT 6

~~With one required ADV line inoperable, action must be taken to restore OPERABLE status within 7 days. The 7 day Completion Time allows for the redundant capability afforded by the remaining OPERABLE ADV lines, a nonsafety grade backup in the Steam Bypass System, and MSSVs.~~ 6

2 **INSERT 5**

cooldown the RCS to establish sufficient subcooling and prevent steam generator overfill following the steam generator rupture when

6 **INSERT 6**

With one or more ARV lines inoperable due to one train of ACAS nonfunctional, action must be taken to restore the ACAS train to functional status within 72 hours. The 72 hour Completion Time is reasonable to repair the nonfunctional ACAS train, based on the availability of the remaining OPERABLE ARV lines, the alternate means to control the inoperable ARVs and the low probability of an event occurring during the time ACAS train is nonfunctional. Alternate means of operation include valve reach rod handwheels and backup air bottles at the control stations outside containment.

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BASES

ACTIONS (continued)

B.1

one s for reasons other than Condition A

With ~~two~~ or more ~~ADV~~ ARV lines inoperable, action must be taken to restore all ~~but one ADV~~ ARV line to OPERABLE status. ~~Since the block valve can be closed to isolate an ADV, some repairs may be possible with the unit at power.~~ The 24 hour Completion Time is reasonable to repair inoperable ~~ADV~~ ARV lines, based on the availability of the Steam ~~Bypass~~ Dump System and MSSVs, and the low probability of an event occurring during this period that would require the ~~ADV~~ ARV lines. 6 1 2

C.1 and C.2

If the ~~ADV~~ ARV lines cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4, without reliance upon steam generator for heat removal, within ~~[~~24~~]~~ hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. 1 3

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

To perform a controlled cooldown of the RCS, the ~~ADVs~~ ARVs must be able to be opened ~~either~~ remotely ~~or locally~~ and throttled through their full range. This SR ensures that the ~~ADVs~~ ARVs are tested through a full control cycle at least once per fuel cycle. Performance of inservice testing or use of an ~~ADV~~ ARV during a unit cooldown may satisfy this requirement. ~~[Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. The Frequency is acceptable from a reliability standpoint.~~ 2 1 7

~~OR~~

~~Inservice Testing~~

The Surveillance Frequency is controlled under the ~~Surveillance Frequency Control~~ Program. ~~7~~

stet MEH-001

~~------------------------------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.~~
~~---]~~ 8

1

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[SR 3.7.4.2~~

~~The function of the block valve is to isolate a failed open ADV. Cycling the block valve both closed and open demonstrates its capability to perform this function. Performance of inservice testing or use of the block valve during unit cooldown may satisfy this requirement. [Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. The Frequency is acceptable from a reliability standpoint.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~ 6

~~-----------------------------------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.~~
~~---]]~~ 8

REFERENCES

1. U FSAR, Section ~~[~~10.3~~]~~. 2 3

2. UFSAR, Chapter 15

3. UFSAR, Section 15.4.3 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.4 BASES, ATMOSPHERIC RELIEF VALVES (ARVs)

1. ISTS B 3.7.4, "Atmospheric Dump Valves" title has been changed to "Atmospheric Relief Valves" to reflect the name used at Sequoyah Nuclear Plant. Additionally, the acronyms "ADVs" and "ADV" have been changed to "ARVs" and "ARV", respectively.

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 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 SQN UFSAR accident analysis describing the use of the ARVs in the mitigation of the steam generator tube rupture event concurrent with a loss of offsite power. The accident analysis assumes the steam generator ARVs associated with the unaffected steam generators are available to cool down the RCS and terminate the primary to secondary leak.

5. SQN Unit 1 and 2 Steam Generator Tube Rupture accident analysis does not assume a single failure.

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

7. ISTS SR 3.7.4.1 provides two options for controlling the Frequency of the Surveillance Requirement. SQN is proposing to control the ARV Surveillance Frequency under the ~~Inservice Testing~~ Program. ~~The ARVs are ASME Section XI Code Class valves at SQN and as such are tested under the SQN ASME Section XI Inservice Testing Program.~~ MEH-001

8. 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.

Surveillance Frequency Control

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.4, ATMOSPHERIC RELIEF VALVES (ARVs)

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

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ATTACHMENT 5

ITS 3.7.5, AUXILIARY FEEDWATER (AFW) SYSTEM

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

ITS A01 ITS 3.7.5

PLANT SYSTEMS

AUXILIARY FEEDWATER (AFW) SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.7.5 3.7.1.2 Three auxiliary feedwater trains shall be OPERABLE.*

Applicability APPLICABILITY: MODES 1, 2, and 3, MODE 4 when steam generator is relied upon for heat removal.

ACTION:

Add proposed ACTION A L01

ACTION B / ACTION D a. With one AFW train inoperable in MODE 1, 2, or 3, restore the inoperable AFW train to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours.

Add proposed ACTIONS C L01

ACTION D b. With two AFW trains inoperable in MODE 1, 2, or 3, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following ~~6~~ 12 hours. L02

ACTION E c. With three AFW trains inoperable in MODE 1, 2, or 3, immediately initiate corrective action to restore at least one AFW train to OPERABLE status.**

ACTION F d. With the required AFW train inoperable in MODE 4, immediately initiate action to restore the required AFW train to OPERABLE status.

ACTION Note e. LCO 3.0.4.b is not applicable.

L03 Add proposed SR 3.7.5.1 Note

SURVEILLANCE REQUIREMENTS

In accordance with the Surveillance Frequency Control Program LA01

SR 3.7.5.1 4.7.1.2.1 ~~At least once per 31 days~~, verify each AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.

LCO 3.7.5 Note * Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.

Required Action E.1 Note ** LCO 3.0.3 and all other LCO ACTIONS requiring MODE changes are suspended until one AFW train is restored to OPERABLE status.

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PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

In accordance with the Inservice Testing Program LA02

SR 3.7.5.2 4.7.1.2.2 ~~At least once per 92 days,~~ verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.*

In accordance with the Surveillance Frequency Control Program LA01

SR 3.7.5.3 4.7.1.2.3 ~~Once every 18 months,~~ verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.**

In accordance with the Surveillance Frequency Control Program LA01

SR 3.7.5.4 4.7.1.2.4 ~~Once every 18 months,~~ verify each AFW pump starts automatically on an actual or simulated actuation signal.***

SR 3.7.5.2 Note * Not required to be completed for the turbine driven AFW pump until 24 hours after steam supply pressure is greater than or equal to 842 psig.

Add proposed SR 3.7.5.3 Note 1 L04

SR 3.7.5.3 Note 2 ** Not applicable in Mode 4 when steam generators are relied upon for heat removal.

Add proposed SR 3.7.5.4 Note 3 L04

SR 3.7.5.4 Note 1
SR 3.7.5.4 Note 2 *** Not required to be completed for the turbine driven AFW pump until 24 hours after steam supply pressure is greater than or equal to 842 psig. Not applicable in MODE 4 when steam generator(s) are relied upon for heat removal.

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ITS

A01

ITS 3.7.5

PLANT SYSTEMS

AUXILIARY FEEDWATER (AFW) SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.7.5 3.7.1.2 Three auxiliary feedwater trains shall be OPERABLE.*

Applicability APPLICABILITY: MODES 1, 2, and 3, MODE 4 when steam generator is relied upon for heat removal.

ACTION:

Add proposed Action A L01

ACTION B
ACTION D
a. With one AFW train inoperable in MODE 1, 2, or 3, restore the inoperable AFW train to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours.

Add proposed ACTIONS C L01

ACTION D
b. With two AFW trains inoperable in MODE 1, 2, or 3, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following ~~6~~ 12 hours.

L02

ACTION E
c. With three AFW trains inoperable in MODE 1, 2, or 3, immediately initiate corrective action to restore at least one AFW train to OPERABLE status.**

ACTION F
d. With the required AFW train inoperable in MODE 4, immediately initiate action to restore the required AFW train to OPERABLE status.

ACTION Note
e. LCO 3.0.4.b is not applicable.

L03

Add proposed SR 3.7.5.1 Note

SURVEILLANCE REQUIREMENTS

In accordance with the Surveillance Frequency Control Program LA01

SR 3.7.5.1
4.7.1.2.1 ~~At least once per 31 days~~, verify each AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.

LCO 3.7.5 Note
* Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.

Required Action E.1 Note
** LCO 3.0.3 and all other LCO ACTIONS requiring MODE changes are suspended until one AFW train is restored to OPERABLE status.

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ITS

A01

ITS 3.7.5

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

In accordance with the Inservice Testing Program — LA02

SR 3.7.5.2 4.7.1.2.2 ~~At least once per 92 days,~~ verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.*

In accordance with the Surveillance Frequency Control Program — LA01

SR 3.7.5.3 4.7.1.2.3 ~~Once every 18 months,~~ verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.**

In accordance with the Surveillance Frequency Control Program — LA01

SR 3.7.5.4 4.7.1.2.4 ~~Once every 18 months,~~ verify each AFW pump starts automatically on an actual or simulated actuation signal.***

SR 3.7.5.2 Note * Not required to be completed for the turbine driven AFW pump until 24 hours after steam supply pressure is greater than or equal to 842 psig.

Add proposed SR 3.7.5.3 Note 1 — L04

SR 3.7.5.3 Note 2 ** Not applicable in Mode 4 when steam generators are relied upon for heat removal.

Add proposed SR 3.7.5.4 Note 3 — L04

SR 3.7.5.4 Note 1
SR 3.7.5.4 Note 2 *** Not required to be completed for the turbine driven AFW pump until 24 hours after steam supply pressure is greater than or equal to 842 psig. Not applicable in MODE 4 when steam generator(s) are relied upon for heat removal.

DISCUSSION OF CHANGES
ITS 3.7.5, AUXILIARY FEEDWATER (AFW) SYSTEM

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

LA01 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program).* CTS 4.7.1.2.1 requires verification that each AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position at least once per 31 days. CTS 4.7.1.2.3 requires verification that each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal once every 18 months. CTS 4.7.1.2.4 requires verification that each AFW pump starts automatically on an actual or simulated actuation signal once every 18 months. ITS SR 3.7.5.1, SR 3.7.5.3, and SR 3.7.5.4 require similar Surveillances but specify the periodic Frequency as, "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for these SRs and associated Bases to the Surveillance Frequency Control Program.

The removal of these details related to Surveillance Requirement Frequencies 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 existing Surveillance Frequencies are removed from Technical Specifications and placed under licensee control pursuant to the methodology described in NEI 04-10. A new program (Surveillance Frequency Control Program) is being added to the Administrative Controls section of the Technical Specifications describing the control of Surveillance Frequencies. The surveillance test requirements remain in the Technical Specifications. The control of changes to the Surveillance

DISCUSSION OF CHANGES
ITS 3.7.5, AUXILIARY FEEDWATER (AFW) SYSTEM

Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. This change is designated as a less restrictive removal of detail change, because the Surveillance Frequencies are 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 4.7.1.2.2 states, "At least once per 92 days, verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head." ITS SR 3.7.5.2 states, "Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head," with a Frequency stated as, "In accordance with the Inservice Testing Program." This changes the CTS by relocating the Surveillance Frequency from the technical specification to the Inservice Testing Program.

This change will result in the Technical Specification surveillance test referencing the IST for performance of pump testing. This will eliminate any potential ambiguity associated with AFW pump testing, because of ASME changes, and results in consistent presentation of pump testing throughout the Technical Specifications. This frequency for testing AFW pumps is consistent with the ASME Code requirements and consistent with other similar pump testing frequencies important to safety. Such inservice tests confirm component operability, trend performance, and detect incipient failures by indicating abnormal performance. This change is acceptable because these types of details are adequately controlled in the IST Program, which is controlled by 10 CFR 50.55a, and the Frequency for the verification has not changed (IST Program frequency states in part, "… quarterly (at least once every 92 days)." Therefore, this type of information is not necessary to be in the Technical Specifications in order to provide adequate protection of the public health and safety. This change is designated as a less restrictive removal of detail change because details for meeting Technical Specification requirements are being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.7.1.2.a states that with one AFW train inoperable in MODE 1, 2, or 3, restore the inoperable AFW train to OPERABLE status within 72 hours or be in HOT STANDBY within 6 hours and HOT SHUTDOWN within the following 6 hours. CTS 3.7.1.2.b states, "With two AFW trains inoperable in MODE 1, 2, or 3, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours." ITS 3.7.5 ACTION B requires the restoration of one inoperable AFW train in MODES 1, 2, or 3 in 72 hours when the AFW train is inoperable for reasons other than Condition A. ITS LCO ~~3.7.3~~ 3.7.5 ACTION A states that with the turbine driven AFW train inoperable because of one inoperable steam supply or, if MODE 2 has not been entered following refueling, one turbine driven AFW pump inoperable in MODE 3 following refueling, to restore affected equipment to OPERABLE status within 7 SII

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DISCUSSION OF CHANGES
ITS 3.7.5, AUXILIARY FEEDWATER (AFW) SYSTEM

days. ITS LCO 3.7.5 ACTION C states that with the turbine driven AFW train inoperable due to one inoperable steam supply and one motor driven AFW train inoperable either 1) restore the steam supply to the turbine driven train to OPERABLE status or 2) restore the motor driven AFW train to OPERABLE status within 48 hours. ITS 3.7.5 ACTION D requires a plant shutdown when two AFW trains are inoperable in MODES 1, 2, or 3 for reasons other than Condition C. ITS LCO 3.7.5, ACTION D requires a plant shutdown when the Required Actions and associated Completion Times of Conditions A, B, or C are not met. This changes the CTS by allowing a longer Completion Time if the inoperable AFW train is the turbine driven AFW train and the inoperability is due to an inoperable steam supply or the plant condition is following the refueling prior to entering MODE 2.

The purpose of CTS 3.7.1.2, AFW system, is to provide redundant, independent, and diverse means of supplying feedwater to the SGs for cooling the RCS under emergency conditions. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features, the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. For ACTION C, one steam supply for the turbine driven AFW pump remains OPERABLE, which will provide the required steam flow for the pump to produce the design flow rate and therefore, the capability to mitigate analyzed accidents is preserved (i.e., the pump remains capable of performing its safety function). For ACTION A, an inoperable turbine driven AFW pump in MODE 3 following a refueling is acceptable because the remaining motor driven AFW trains remain capable of supplying additional redundant trains of AFW and the decay heat in the Reactor Coolant System is low. The probability of an event occurring during the extended outage time that would require the inoperable steam supply or turbine driven AFW pump to function is low. The ACTION provides adequate assurance that the AFW System will continue to meet the assumptions stated in the safety analyses for the AFW system to mitigate postulated accidents. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L02 *(Category 3 – Relaxation of Completion Time)* CTS 3.7.1.2.b requires that with two AFW trains inoperable, the unit is to be in HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours. ITS 3.7.5 ACTION D requires the unit to be in MODE 3 in 6 hours and MODE 4 in 18 hours. This changes the CTS by allowing 18 hours instead of 12 hours to be in MODE 4.

This change is acceptable because the Completion Time is consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features, the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the allowed Completion Time. The allowance to place the plant in MODE 4 in 18 hours allows the unit to reach the

DISCUSSION OF CHANGES
ITS 3.7.5, AUXILIARY FEEDWATER (AFW) SYSTEM

required conditions from full power conditions in an orderly manner and without challenging plant systems. The period of 18 hours to require the plant to move from 100% power to MODE 4 is consistent with CTS 3.7.1.2.a, where two AFW pumps are available for cooldown instead of one, and ITS requirements when the heat removal capability of the unit is degraded. This change is designated as less restrictive because additional time is allowed to exit the Modes of Applicability than was allowed in CTS.

L03 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* CTS 4.7.1.2.1 states in part, verify each AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position. ITS SR 3.7.5.1 states in part, "Verify each AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position. Additionally, ITS SR 3.7.5.1 contains a Note that states, "AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation." This changes the CTS by allowing the AFW train to be considered OPERABLE during alignment and operation for steam generator level control as long as it is capable of being manually realigned to the AFW mode of operation.

The purpose of CTS 4.7.1.2.1 is to ensure the AFW System valves can operate automatically to perform their safety function. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. This change allows these automatic features to not be OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be used during startup, shutdown, and hot standby operations for steam generator level control, and these manual operations are an accepted function of the AFW System, OPERABILITY (i.e., the intended safety function) continues to be maintained. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L04 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria).* CTS 4.7.1.2.3 requires verification that each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal once every 18 months. CTS 4.7.1.2.4 requires verification that each AFW pump starts automatically on an actual or simulated actuation signal once every 18 months. ITS SR 3.7.5 3 and ITS SR 3.7.5.4 require the same verifications for the AFW valves and pumps, respectively with a Note that states, "AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation." This changes the CTS by allowing the AFW trains to be considered OPERABLE during alignment and operation for steam generator level control, if it is capable

DISCUSSION OF CHANGES
ITS 3.7.5, AUXILIARY FEEDWATER (AFW) SYSTEM

of being manually realigned to the AFW mode of operation in any Mode the LCO is applicable.

The purpose of CTS 4.7.1.2.3 and CTS 4.7.1.2.4 is to ensure the AFW System valves and pumps, respectively, can operate automatically to perform their safety function. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. This change allows these automatic features to not be OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be used during startup, shutdown, and hot standby operations for steam generator level control, and these manual operations are an accepted function of the AFW System, OPERABILITY (i.e., the intended safety function) continues to be maintained. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

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

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

3.7.1.2 LCO 3.7.5 ~~[~~Three~~]~~ AFW trains shall be OPERABLE. 1

---NOTE---

3.7.1.2 * Note ~~[~~Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4. ~~]~~ 1

Applicability APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

---NOTE---

ACTION e LCO 3.0.4.b is not applicable ~~[when entering MODE 1~~.~~]~~ 2

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~[~~Turbine driven AFW train inoperable due to one inoperable steam supply. <u>OR</u> ------------NOTE------------ Only applicable if MODE 2 has not been entered following refueling. -------------------------------- One turbine driven AFW pump inoperable in MODE 3 following refueling.	A.1 Restore affected equipment to OPERABLE status.	7 days ~~]~~

DOC L01 1

CTS

AFW System
3.7.5

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION a	B. One AFW train inoperable in MODE 1, 2, or 3 [for reasons other than Condition A].	B.1 Restore AFW train to OPERABLE status.	72 hours	1
DOC L01	C. Turbine driven AFW train inoperable due to one inoperable steam supply. AND One motor driven AFW train inoperable.	C.1 Restore the steam supply to the turbine driven train to OPERABLE status. OR C.2 Restore the motor driven AFW train to OPERABLE status.	[~~24 or~~ 48] hours [~~24 or~~48] hours	4
DOC L01 ACTION b	D. Required Action and associated Completion Time of Condition A [, B, or C] not met. [OR Two AFW trains inoperable in MODE 1, 2, or 3 for reasons other than Condition C.]	D.1 Be in MODE 3. AND D.2 [Be in MODE 4.	6 hours [18] hours]	1
ACTION c	E. [Three] AFW trains inoperable in MODE 1, 2, or 3.	E.1 --------------NOTE-------------- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ------------------------------------ Initiate action to restore one AFW train to OPERABLE status.	 Immediately]	1 1

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME
ACTION d	F. Required AFW train inoperable in MODE 4.	F.1	Initiate action to restore AFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
DOC L04 4.7.1.2.1	SR 3.7.5.1	------------------------------NOTE------------------------------ ~~[~~AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation. ~~]~~ -- Verify each AFW manual, power operated, and automatic valve in each water flow path, [and in both steam supply flow paths to the steam turbine driven pump,] that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	1 5
4.7.1.2.4 Note* 4.7.1.2.2	SR 3.7.5.2	------------------------------NOTE------------------------------ ~~[~~Not required to be performed for the turbine driven AFW pump until [24 hours] after ≥ ~~[1000]~~ 842 psig in the steam generator.] -- Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.	 In accordance with the Inservice Testing Program	1

SURVEILLANCE REQUIREMENTS (continued)

CTS	SURVEILLANCE		FREQUENCY	
DOC L04 4.7.1.2.3 Note **	SR 3.7.5.3	------NOTE------ S 1. [AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation.] -------------		6 1 6
4.7.1.2.3		Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal. 2. Only required to be met in MODES 1, 2, and 3.	[~~[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	5
4.7.1.2.4 Note *** DOC L04 4.7.1.2.4 Note ***	SR 3.7.5.4	------NOTES------ 1. [Not required to be performed for the turbine driven AFW pump until [24 hours] after ≥ ~~[1000]~~ 842 psig in the steam generator.] 2. [AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation.] -------------		1 6
4.7.1.2.4		Verify each AFW pump starts automatically on an actual or simulated actuation signal. 3. Only required to be met in MODES 1, 2, and 3.	[~~[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	5

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.7.5.5~~	~~[Verify proper alignment of the required AFW flow paths by verifying flow from the condensate storage tank to each steam generator.~~	~~Prior to entering MODE 2 whenever unit has been in MODE 5, MODE 6, or defueled for a cumulative period of > 30 days]~~

7

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

3.7.1.2 LCO 3.7.5 ~~[~~Three~~]~~ AFW trains shall be OPERABLE. 1

--NOTE--

3.7.1.2 * Note ~~[~~Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4. ~~]~~ 1

Applicability APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

---NOTE---

ACTION e LCO 3.0.4.b is not applicable ~~[when entering MODE 1.]~~ 2

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC L01 A. ~~[~~Turbine driven AFW train inoperable due to one inoperable steam supply. OR ------------NOTE------------ Only applicable if MODE 2 has not been entered following refueling. -------------------------------- One turbine driven AFW pump inoperable in MODE 3 following refueling.	A.1 Restore affected equipment to OPERABLE status.	7 days ~~]~~ 1

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CTS

AFW System
3.7.5

ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
ACTION a	B. One AFW train inoperable in MODE 1, 2, or 3 [for reasons other than Condition A].	B.1	Restore AFW train to OPERABLE status.	72 hours	1
DOC L01	C. Turbine driven AFW train inoperable due to one inoperable steam supply. AND One motor driven AFW train inoperable.	C.1 OR C.2	Restore the steam supply to the turbine driven train to OPERABLE status. Restore the motor driven AFW train to OPERABLE status.	[~~24 or~~ 48] hours [~~24 or~~48] hours	4
DOC L01 ACTION b	D. Required Action and associated Completion Time of Condition A [, B, or C] not met. [OR Two AFW trains inoperable in MODE 1, 2, or 3 for reasons other than Condition C.]	D.1 AND D.2	Be in MODE 3. [Be in MODE 4.	6 hours [18] hours]	1
ACTION c	E. [Three] AFW trains inoperable in MODE 1, 2, or 3.	E.1	--------------NOTE-------------- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ------------------------------------- Initiate action to restore one AFW train to OPERABLE status.	 Immediately]	1 1

ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME
ACTION d	F. Required AFW train inoperable in MODE 4.	F.1	Initiate action to restore AFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
DOC L04 4.7.1.2.1	SR 3.7.5.1	------------------------------NOTE----------------------------- ~~[~~ AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation. ~~]~~ --- Verify each AFW manual, power operated, and automatic valve in each water flow path, [and in both steam supply flow paths to the steam turbine driven pump,] that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	1 5
4.7.1.2.4 Note* 4.7.1.2.2	SR 3.7.5.2	------------------------------NOTE----------------------------- ~~[~~ Not required to be performed for the turbine driven AFW pump until [24 hours] after ≥ ~~[1000]~~ 842 psig in the steam generator.] --- Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program	1

CTS

AFW System
3.7.5

SURVEILLANCE REQUIREMENTS (continued)

CTS		SURVEILLANCE	FREQUENCY
DOC L04 4.7.1.2.3 Note ** 4.7.1.2.3	SR 3.7.5.3	S -----------------------------NOTE----------------------------- 1. ~~[~~ AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation. ~~]~~ 2. Only required to be met in MODES 1, 2, and 3. --- Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
4.7.1.2.4 Note *** DOC L04 4.7.1.2.4 Note *** 4.7.1.2.4	SR 3.7.5.4	-----------------------------NOTES----------------------------- 1. ~~[~~ Not required to be performed for the turbine driven AFW pump until [24 hours] after ≥ ~~[1000]~~ 842 psig in the steam generator. ~~]~~ 2. [AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation.] --- Verify each AFW pump starts automatically on an actual or simulated actuation signal. 3. Only required to be met in MODES 1, 2, and 3.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]

6 1 6 5 1 6 5

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.7.5.5~~	~~[Verify proper alignment of the required AFW flow paths by verifying flow from the condensate storage tank to each steam generator.~~	~~Prior to entering MODE 2 whenever unit has been in MODE 5, MODE 6, or defueled for a cumulative period of > 30 days]~~ 7

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JUSTIFICATION FOR DEVIATIONS
ITS 3.7.5, AUXILIARY FEEDWATER (AFW) SYSTEM

1. 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.

2. ISTS bases for ISTS 3.7.5 contains a "Reviewers Note" that states in part, "If the plant does depend on AFW for startup, the Note should state, “LCO 3.0.4.b is not applicable.”" Since Sequoyah Nuclear Plant (SQN) Unit 1 and Unit 2 depend on AFW for startup the bracketed information is deleted.

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.

4. ISTS bases for ISTS 3.7.5 contains a "Reviewers Note" that states, "Licensees should adopt the appropriate Completion Time based on their plant design. The 24 hour Completion Time is applicable to plants that can no longer meet the safety analysis requirement of 100% AFW flow to the SG(s) assuming no single active failure and a Feedwater Line Break (FWLB) or Main Steam Line Break (MSLB) resulting in the loss of the remaining steam supply to the turbine driven AFW pump. The 48 hour Completion Time is applicable to plants that can still meet the safety analysis requirement of 100% AFW flow to the SG(s) assuming no single active failure and a FLB or MSLB resulting in the loss of the remaining steam supply to the turbine driven AFW pump." Based on this reviewers note SQN determined 48 hours is the appropriate value.

5. ISTS SR 3.7.5.1, ISTS SR 3.7.5.3, and ISTS SR 3.7.5.4 (ITS SR 3.7.5.1, ITS SR 3.7.5.3, and ITS SR 3.7.5.4) provide two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

6. ISTS LCO 3.7.5 Note states that only one AFW train is required to be OPERABLE in MODE 4. In addition, the Applicability states that the MODE 4 requirement is applicable only when the steam generator (SG) is relied upon for heat removal. The ISTS 3.7.5 Bases state that the purpose of the AFW train is only to remove decay heat from the SG in MODE 4. Thus, automatic operation of the AFW train is not required in MODE 4. Therefore, a Note has been added to ISTS SR 3.7.5.3 and SR 3.7.5.4 (Note 2 to SR 3.7.5.3 and Note 3 to SR 3.7.5.4) stating that the SRs are only required to be met in MODES 1, 2, and 3 (i.e., they are not required to be met in MODE 4). This is also consistent with the current licensing basis.

7. ISTS SR 3.7.5.5 Bases includes a Reviewers Note that states the SR is not required by those units that use AFW for normal startup and shutdown. Since SQN uses the AFW system during these conditions this SR has not been included.

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

B 3.7 PLANT SYSTEMS

B 3.7.5 Auxiliary Feedwater (AFW) System

BASES

BACKGROUND

The AFW System automatically supplies feedwater to the steam generators to remove decay heat from the Reactor Coolant System upon the loss of normal feedwater supply. INSERT 1 ~~The AFW pumps take suction through separate and independent suction lines from the condensate storage tank (CST) (LCO 3.7.6, "Condensate Storage Tank (CST)") and pump to the steam generator secondary side via separate and independent connections to the main feedwater (MFW) piping outside containment.~~ The steam generators function as a heat sink for core decay heat. The heat load is dissipated by releasing steam to the atmosphere from the steam generators via the main steam safety valves (MSSVs) (LCO 3.7.1, "Main Steam Safety Valves (MSSVs)") or atmospheric relief ~~dump~~ valves (LCO 3.7.4, "Atmospheric Relief ~~Dump~~ Valves (ARVs ~~ADVs~~)"). If the main condenser is available, steam may be released via the steam Dump ~~bypass~~ valves and recirculated to the CST. 1 1

The AFW System consists of ~~[~~two~~]~~ motor driven AFW pumps and one steam turbine driven pump configured into ~~[~~three~~]~~ trains. Each motor driven pump provides ~~[~~100~~]~~% of AFW flow capacity, and the turbine driven pump provides ~~[~~200~~]~~% of the required capacity to the steam generators, as assumed in the accident analysis INSERT 2. The pumps are equipped with 1½ inch ~~independent~~ recirculation lines to prevent pump operation against a closed system. Each motor driven AFW pump is powered from an independent Class 1E power supply and feeds ~~[~~two~~]~~ steam generators~~, although each pump has the capability to be realigned from the control room to feed other steam generators~~. The steam turbine driven AFW pump receives steam from two main steam lines upstream of the main steam isolation valves. Each of the steam feed lines will supply 100% of the requirements of the turbine driven AFW pump. 2 1 1 2 1

The AFW System is capable of supplying feedwater to the steam generators during normal unit startup, shutdown, and hot standby conditions.

The turbine driven AFW pump supplies a common header capable of feeding all steam generators with DC powered pneumatic control valves actuated to open ~~the appropriate steam generator~~ by the Engineered Safety Feature Actuation System (ESFAS). One pump at full flow is sufficient to remove decay heat and cool the unit to residual heat removal (RHR) entry conditions. Thus, the requirement for diversity in motive power sources for the AFW System is met. 1

1

INSERT 1

Except for the common miniflow line to and supply line from the condensate storage tanks and some shared support facilities such as the condensate storage tanks and parts of the Control Air System, the two reactor units have separate AFW Systems. The normal suction for both units AFW pumps is through a common header connected to two condensate storage tanks (CSTs) (LCO 3.7.6, "Condensate Storage Tank (CST)"). The pumps are grouped into unit specific systems with each systems' pumps aligned to their respective units steam generators secondary side via connections to the main feedwater piping between the main feedwater isolation check valve and the steam generator. The nonessential condensate supply is isolated from the essential portion of the AFW System by check valves. A low AFW pump suction pressure automatically actuates valves from ERCW on a two-out-of three signal to align the AFW pump suction to ERCW to ensure the AFW pumps have an adequate water supply.

1

INSERT 2

, except for the Feedwater line Break (FWLB) and Small Break Loss-of-Coolant accident (SBLOCA)

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BASES

BACKGROUND (continued)

The AFW System is designed to supply sufficient water to the steam generator(s) to remove decay heat with steam generator pressure at the setpoint of the MSSVs. Subsequently, the AFW System supplies sufficient water to cool the unit to RHR entry conditions, with steam released through the ~~ADVs~~ ARVs. 1

The AFW System actuates automatically on steam generator water level low-low by the ESFAS (LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation"). The system also actuates on loss of offsite power, safety injection, INSERT 3 and trip of all MFW pumps INSERT 4. 1

The AFW System is discussed in the U FSAR, Section ~~[~~10.4.~~9]~~ 7.2 (Ref. 1). 2

APPLICABLE SAFETY ANALYSES

The AFW System mitigates the consequences of any event with loss of normal feedwater.

The design basis of the AFW System is to supply water to the steam generator s to remove decay heat and other residual heat by delivering at least the minimum required flow rate to the steam generators at pressures corresponding to the lowest steam generator safety valve set pressure plus 3%. 1

In addition, the AFW System must supply enough makeup water to replace steam generator secondary inventory lost as the unit cools to MODE 4 conditions. Sufficient AFW flow must also be available to account for flow losses such as pump recirculation and line breaks.

The limiting Design Basis Accidents (DBAs) and transients for the AFW System are as follows:

a. Feedwater Line Break (FWLB) and

b. Loss of MFW.

In addition, the minimum available AFW flow and system characteristics are serious considerations in the analysis of a small break loss of coolant accident (LOCA).

The AFW System design is such that it can perform its function following an FWLB between the MFW isolation valves and containment, combined with a loss of offsite power following turbine trip, and a single active failure of the steam turbine driven AFW pump. ~~In such a case, the~~ 1

1 **INSERT 3**

initiation of Anticipated Transient Without Scram (ATWS) Mitigation Actuation Circuitry (AMSAC), trip of one MFW pump with turbine load above 76.6% Unit 1,

1 **INSERT 4**

The AFW System actuations on an AMSAC signal and on a MFW pump trip/power coincident signal are not required as part of this LCO.

BASES

APPLICABLE SAFETY ANALYSES (continued)

In such a case, one

~~ESFAS logic may not detect the affected steam generator if the backflow check valve to the affected MFW header worked properly. One~~ motor driven AFW pump would deliver to the broken MFW header at the pump runout flow until the problem was detected, and flow terminated by the operator. Sufficient flow would be delivered to the intact steam generator by the redundant AFW pump. 1

The ESFAS automatically actuates the AFW turbine driven pump and associated power operated valves and controls when required to ensure an adequate feedwater supply to the steam generators during loss of power. Air ~~DC power~~ operated valves are provided for each AFW line to control the AFW flow to each steam generator. 1

The AFW System satisfies the requirements of Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO provides assurance that the AFW System will perform its design safety function to mitigate the consequences of accidents that could result in overpressurization of the reactor coolant pressure boundary. ~~[~~Three~~]~~ independent AFW pumps in ~~[~~three~~]~~ diverse trains are required to be OPERABLE to ensure the availability of decay heat removal ~~RHR capability~~ for all events accompanied by a loss of offsite power and a single failure. This is accomplished by powering two of the pumps from independent emergency buses. The third AFW pump is powered by a different means, a steam driven turbine supplied with steam from a source that is not isolated by closure of the MSIVs. 2 1

The AFW System is configured into ~~[~~three~~]~~ trains. The AFW System is considered OPERABLE when the components and flow paths required to provide redundant AFW flow to the steam generators are OPERABLE. This requires that the two motor driven AFW pumps be OPERABLE in ~~[~~two~~]~~ diverse paths, each supplying AFW to separate steam generators. The turbine driven AFW pump is required to be OPERABLE with redundant steam supplies from each of ~~[~~two~~]~~ main steam lines upstream of the MSIVs, and shall be capable of supplying AFW to any of the steam generators. The piping, valves, instrumentation, and controls in the required flow paths are also required to be OPERABLE. 2 2 2 3

The LCO is modified by a Note indicating that one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4. This is because of the reduced heat removal requirements and short period of time in MODE 4 during which the AFW is required and the insufficient steam available in MODE 4 to power the turbine driven AFW pump.

BASES

APPLICABILITY

In MODES 1, 2, and 3, the AFW System is required to be OPERABLE in the event ~~that~~ it is called upon to function when ~~the~~ MFW is lost. In addition, the AFW System is required to supply enough makeup water to replace the steam generator secondary inventory, lost as the unit cools to MODE 4 conditions. 1

In MODE 4 the AFW System may be used for heat removal via the steam generators.

In MODE 5 or 6, the steam generators are not normally used for heat removal, and the AFW System is not required.

ACTIONS

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The LCO 3.0.4.b Note prohibits application of the LCO 3.0.4.b exception when entering MODE 1 if the plant does not depend on AFW for startup. If the plant does depend on AFW for startup, the Note should state, "LCO 3.0.4.b is not applicable."~~ 4
~~---~~

A Note prohibits the application of LCO 3.0.4.b to an inoperable AFW train ~~[when entering MODE 1]~~. There is an increased risk associated with ~~[~~entering a MODE or other specified condition in the Applicability~~]~~ ~~[entering MODE 1]~~ with an AFW train inoperable and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance. 5

~~[~~ A.1 2

If the turbine driven AFW train is inoperable due to one inoperable steam supply, or if a turbine driven pump is inoperable for any reason while in MODE 3 immediately following refueling, action must be taken to restore the inoperable equipment to an OPERABLE status within 7 days. The 7 day Completion Time is reasonable, based on the following reasons:

a. For the inoperability of the turbine driven AFW pump due to one inoperable steam supply, the 7 day Completion Time is reasonable since there is a redundant steam supply line for the turbine driven pump and the turbine driven train is still capable of performing its specified function for most postulated events.

b. For the inoperability of a turbine driven AFW pump while in MODE 3 immediately subsequent to a refueling, the 7 day Completion Time is reasonable due to the minimal decay heat levels in this situation.

BASES

ACTIONS (continued)

c. For both the inoperability of the turbine driven pump due to one inoperable steam supply and an inoperable turbine driven AFW pump while in MODE 3 immediately following a refueling outage, the 7 day Completion Time is reasonable due to the availability of redundant OPERABLE motor driven AFW pumps, and due to the low probability of an event requiring the use of the turbine driven AFW pump.

Condition A is modified by a Note which limits the applicability of the Condition for an inoperable turbine driven AFW pump in MODE 3 to when the unit has not entered MODE 2 following ~~a~~ refueling. Condition A allows one AFW train to be inoperable for 7 days vice the 72 hour Completion Time in Condition B. This longer Completion Time is based on the reduced decay heat following refueling and prior to the reactor being critical. ~~]~~ 1 2

B.1

With one of the required AFW trains (pump or flow path) inoperable in MODE 1, 2, or 3 ~~[~~for reasons other than Condition A~~]~~, action must be taken to restore OPERABLE status within 72 hours. This Condition includes the loss of two steam supply lines to the turbine driven AFW pump. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the AFW System, the time needed for repairs, and the low probability of a DBA occurring during this time period. 2

C.1 and C.2

With one of the required motor driven AFW trains (pump or flow path) inoperable and the turbine driven AFW train inoperable due to one inoperable steam supply, action must be taken to restore the affected equipment to OPERABLE status within ~~[24] [~~48~~]~~ hours. Assuming no single active failures when in this condition, the accident (a feedline break (FLB) or main steam line break (MSLB)) could result in the loss of the remaining steam supply to the turbine driven AFW pump due to the faulted steam generator (SG). ~~In this condition, the AFW System may no longer be able to meet the required flow to the SGs assumed in the safety analysis, [either due to the analysis requiring flow from two AFW pumps or due to the remaining AFW pump having to feed a faulted SG]~~. 2 3 1

BASES

ACTIONS (continued)

~~-----REVIEWER'S NOTE-----~~
~~Licensees should adopt the appropriate Completion Time based on their plant design. The 24 hour Completion Time is applicable to plants that can no longer meet the safety analysis requirement of 100% AFW flow to the SG(s) assuming no single active failure and a FLB or MSLB resulting in the loss of the remaining steam supply to the turbine driven AFW pump. The 48 hour Completion Time is applicable to plants that can still meet the safety analysis requirement of 100% AFW flow to the SG(s) assuming no single active failure and a FLB or MSLB resulting in the loss of the remaining steam supply to the turbine driven AFW pump.~~
~~----------~~ 4

~~[The 24 hour Completion Time is reasonable based on the remaining OPERABLE steam supply to the turbine driven AFW pump, the availability of the remaining OPERABLE motor driven AFW pump, and the low probability of an event occurring that would require the inoperable steam supply to be available for the turbine driven AFW pump.]~~ 2

~~[~~ The 48 hour Completion Time is reasonable based on the fact that the remaining motor driven AFW train is capable of providing 100% of the AFW flow requirements, and the low probability of an event occurring that would challenge the AFW system.

D.1 and D.2

When Required Action A.1, ~~[~~B.1, C.1, or C.2~~]~~ cannot be completed within the required Completion Time, or if two AFW trains are inoperable in MODE 1, 2, or 3 for reasons other than Condition C, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within ~~[~~18~~]~~ hours. 3 2 2

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

In MODE 4 with two AFW trains inoperable, operation is allowed to continue because only one motor driven pump AFW train is required in accordance with the Note that modifies the LCO. Although not required, the unit may continue to cool down and initiate RHR.

BASES

ACTIONS (continued)

E.1

If all ~~[three]~~ AFW trains are inoperable in MODE 1, 2, or 3, the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting a cooldown with nonsafety related equipment. In such a condition, the unit should not be perturbed by any action, including a power change, that might result in a trip. The seriousness of this condition requires that action be started immediately to restore one AFW train to OPERABLE status. 2

Required Action E.1 is modified by a Note indicating that all required MODE changes are suspended until one AFW train is restored to OPERABLE status. In this case, LCO 3.0.3 is not applicable because it could force the unit into a less safe condition.

F.1

In MODE 4, either the reactor coolant pumps or the RHR loops can be used to provide forced circulation. This is addressed in LCO 3.4.6, "RCS Loops - MODE 4." With the ~~one~~ required AFW train inoperable, action must be taken to immediately restore the inoperable train to OPERABLE status. The immediate Completion Time is consistent with LCO 3.4.6. 6

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

Verifying the correct alignment for manual, power operated, and automatic valves in the AFW System water and steam supply flow paths provides assurance that the proper flow paths will exist for AFW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position.

~~[~~ The SR is modified by a Note that states one or more AFW trains may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually (i.e., remotely or locally, as appropriate) realigned to the AFW mode of operation, provided it is not otherwise inoperable. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be 2

BASES

SURVEILLANCE REQUIREMENTS (continued)

used during startup, shutdown, hot standby operations, and hot shutdown operations for steam generator level control, and these manual operations are an accepted function of the AFW System, OPERABILITY (i.e., the intended safety function) continues to be maintained.] 2

~~[The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~ 7

~~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.~~ 4
~~----------~~]

SR 3.7.5.2

Verifying that each AFW pump's developed head at the flow test point is greater than or equal to the required developed head ensures that AFW pump performance has not degraded during the cycle. Flow and differential head are normal tests of centrifugal pump performance required by the ASME Code (Ref 2). Because it is undesirable to introduce cold AFW into the steam generators while they are operating, this testing is performed on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. Performance of inservice testing discussed in the ASME Code (Ref. 2) (only required at 3-month intervals) satisfies this requirement.

[This SR is modified by a Note indicating that the SR should be deferred until suitable test conditions are established. This deferral is required because there is insufficient steam pressure to perform the test.] 2

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.5.3

or in the event the CSTs become depleted,

This SR verifies that AFW can be delivered to the appropriate steam generator in the event of any accident or transient that generates an ESFAS, by demonstrating that each automatic valve in the flow path actuates to its correct position on an actual or simulated actuation signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. ~~[The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The [18] month Frequency is acceptable based on operating experience and the design reliability of the equipment.~~ 1 7

~~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.~~
~~---]~~ 4

two Notes. Note 1 states that

~~[~~ The SR is modified by ~~a Note that states~~ one or more AFW trains may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually (i.e., remotely or locally, as appropriate) realigned to the AFW mode of operation, provided it is not otherwise inoperable. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be used during startup, shutdown, hot standby operations, and hot shutdown operations for steam generator level control, and these manual operations are an accepted function of the AFW System, OPERABILITY (i.e., the intended safety function) continues to be maintained. ~~]~~ 2 8

INSERT 5

8 **INSERT 5**

Note 2 states that the SR is only required to be met in MODES 1, 2, and 3. It is not required to be met in MODE 4, since the AFW train is only required for the purposes of removing decay heat when the SG is relied upon for heat removal. The operation of the AFW train is by manual means and automatic startup of the AFW train is not required.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.5.4

This SR verifies that the AFW pumps will start in the event of any accident or transient that generates an ESFAS by demonstrating that each AFW pump starts automatically on an actual or simulated actuation signal in MODES 1, 2, and 3. In MODE 4, the required pump is already operating and the autostart function is not required. ~~[The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.~~ 7

~~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.~~ 4
~~-----]~~

three may

This SR is modified by ~~[a] [two]~~ Note~~[~~s~~]~~. ~~[~~Note 1 indicates that the SR be deferred until suitable test conditions are established. This deferral is required because there is insufficient steam pressure to perform the test.~~]~~ 8 3 2
~~[The~~ Note ~~[~~2~~]~~ states that one or more AFW trains may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually (i.e., remotely or locally, as appropriate) realigned to the AFW mode of operation, provided it is not otherwise inoperable. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be used during startup, shutdown, hot standby operations, and hot shutdown operations for steam generator level control, and these manual operations are an accepted function of the AFW System. OPERABILITY (i.e., the intended safety function) continues to be maintained. ~~]~~ 2 8

INSERT 6

8 **INSERT 6**

Note 3 states that the SR is only required to be met in MODES 1, 2, and 3. It is not required to be met in MODE 4, since the AFW train is only required for the purposes of removing decay heat when the SG is relied upon for heat removal. The operation of the AFW train is by manual means and automatic startup of the AFW train is not required.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[SR 3.7.5.5~~

~~This SR verifies that the AFW is properly aligned by verifying the flow paths from the CST to each steam generator prior to entering MODE 2 after more than 30 days in any combination of MODE 5 or 6 or defueled. OPERABILITY of AFW flow paths must be verified before sufficient core heat is generated that would require the operation of the AFW System during a subsequent shutdown. The Frequency is reasonable, based on engineering judgement and other administrative controls that ensure that flow paths remain OPERABLE. To further ensure AFW System alignment, flow path OPERABILITY is verified following extended outages to determine no misalignment of valves has occurred. This SR ensures that the flow path from the CST to the steam generators is properly aligned.]~~ 2

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~This SR is not required by those units that use AFW for normal startup and shutdown.~~ 3
~~---~~

REFERENCES

1. U FSAR, Section ~~[~~10.4.~~9]~~ 7.2. 2
2. ASME Code for Operation and Maintenance of Nuclear Power Plants.

B 3.7 PLANT SYSTEMS

B 3.7.5 Auxiliary Feedwater (AFW) System

BASES

BACKGROUND

The AFW System automatically supplies feedwater to the steam generators to remove decay heat from the Reactor Coolant System upon the loss of normal feedwater supply. INSERT 1 ~~The AFW pumps take suction through separate and independent suction lines from the condensate storage tank (CST) (LCO 3.7.6, "Condensate Storage Tank (CST)") and pump to the steam generator secondary side via separate and independent connections to the main feedwater (MFW) piping outside containment.~~ The steam generators function as a heat sink for core decay heat. The heat load is dissipated by releasing steam to the atmosphere from the steam generators via the main steam safety valves (MSSVs) (LCO 3.7.1, "Main Steam Safety Valves (MSSVs)") or atmospheric ~~dump~~ relief valves (LCO 3.7.4, "Atmospheric ~~Dump~~ Relief Valves (~~ADVs~~ ARVs)"). If the main condenser is available, steam may be released via the steam ~~bypass~~ Dump valves and recirculated to the CST. 1

The AFW System consists of [two] motor driven AFW pumps and one steam turbine driven pump configured into [three] trains. Each motor driven pump provides [100]% of AFW flow capacity, and the turbine driven pump provides [200]% of the required capacity to the steam generators, as assumed in the accident analysis INSERT 2. The pumps are equipped with ~~independent~~ 1½ inch recirculation lines to prevent pump operation against a closed system. Each motor driven AFW pump is powered from an independent Class 1E power supply and feeds [two] steam generators~~, although each pump has the capability to be realigned from the control room to feed other steam generators~~. The steam turbine driven AFW pump receives steam from two main steam lines upstream of the main steam isolation valves. Each of the steam feed lines will supply 100% of the requirements of the turbine driven AFW pump. 2 1 1 2 1

The AFW System is capable of supplying feedwater to the steam generators during normal unit startup, shutdown, and hot standby conditions.

The turbine driven AFW pump supplies a common header capable of feeding all steam generators with DC powered pneumatic control valves actuated to ~~the appropriate steam generator~~ open by the Engineered Safety Feature Actuation System (ESFAS). One pump at full flow is sufficient to remove decay heat and cool the unit to residual heat removal (RHR) entry conditions. Thus, the requirement for diversity in motive power sources for the AFW System is met. 1

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1

INSERT 1

Except for the common miniflow line to and supply line from the condensate storage tanks and some shared support facilities such as the condensate storage tanks and parts of the Control Air System, the two reactor units have separate AFW Systems. The normal suction for both units AFW pumps is through a common header connected to two condensate storage tanks (CSTs) (LCO 3.7.6, "Condensate Storage Tank (CST)"). The pumps are grouped into unit specific systems with each systems' pumps aligned to their respective units steam generators secondary side via connections to the main feedwater piping between the main feedwater isolation check valve and the steam generator. The nonessential condensate supply is isolated from the essential portion of the AFW System by check valves. A low AFW pump suction pressure automatically actuates valves from ERCW on a two-out-of three signal to align the AFW pump suction to ERCW to ensure the AFW pumps have an adequate water supply.

1

INSERT 2

, except for the Feedwater line Break (FWLB) and Small Break Loss-of-Coolant accident (SBLOCA)

BASES

BACKGROUND (continued)

The AFW System is designed to supply sufficient water to the steam generator(s) to remove decay heat with steam generator pressure at the setpoint of the MSSVs. Subsequently, the AFW System supplies sufficient water to cool the unit to RHR entry conditions, with steam released through the ~~ADVs~~ ARVs. 1

The AFW System actuates automatically on steam generator water level low-low by the ESFAS (LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation"). The system also actuates on loss of offsite power, safety injection, INSERT 3 and trip of all MFW pumps INSERT 4. 1

The AFW System is discussed in the U FSAR, Section ~~[~~10.4. ~~9]~~ 7.2 (Ref. 1). 2

APPLICABLE SAFETY ANALYSES

The AFW System mitigates the consequences of any event with loss of normal feedwater.

The design basis of the AFW System is to supply water to the steam generator s to remove decay heat and other residual heat by delivering at least the minimum required flow rate to the steam generators at pressures corresponding to the lowest steam generator safety valve set pressure plus 3%. 1

In addition, the AFW System must supply enough makeup water to replace steam generator secondary inventory lost as the unit cools to MODE 4 conditions. Sufficient AFW flow must also be available to account for flow losses such as pump recirculation and line breaks.

The limiting Design Basis Accidents (DBAs) and transients for the AFW System are as follows:

a. Feedwater Line Break (FWLB) and

b. Loss of MFW.

In addition, the minimum available AFW flow and system characteristics are serious considerations in the analysis of a small break loss of coolant accident (LOCA).

The AFW System design is such that it can perform its function following an FWLB between the MFW isolation valves and containment, combined with a loss of offsite power following turbine trip, and a single active failure of the steam turbine driven AFW pump. ~~In such a case, the~~ 1

1 **INSERT 3**

initiation of Anticipated Transient Without Scram (ATWS) Mitigation Actuation Circuitry (AMSAC), trip of one MFW pump with turbine load above 77% Unit 2,

1 **INSERT 4**

The AFW System actuations on an AMSAC signal and on a MFW pump trip/power coincident signal are not required as part of this LCO.

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BASES

APPLICABLE SAFETY ANALYSES (continued)

In such a case, one

~~ESFAS logic may not detect the affected steam generator if the backflow check valve to the affected MFW header worked properly. One~~ motor driven AFW pump would deliver to the broken MFW header at the pump runout flow until the problem was detected, and flow terminated by the operator. Sufficient flow would be delivered to the intact steam generator by the redundant AFW pump. 1

The ESFAS automatically actuates the AFW turbine driven pump and associated power operated valves and controls when required to ensure an adequate feedwater supply to the steam generators during loss of power. Air ~~DC power~~ operated valves are provided for each AFW line to control the AFW flow to each steam generator. 1

The AFW System satisfies the requirements of Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO provides assurance that the AFW System will perform its design safety function to mitigate the consequences of accidents that could result in overpressurization of the reactor coolant pressure boundary. ~~[~~Three~~]~~ independent AFW pumps in ~~[~~three~~]~~ diverse trains are 2 required to be OPERABLE to ensure the availability of decay heat removal ~~RHR capability~~ for 1 all events accompanied by a loss of offsite power and a single failure. This is accomplished by powering two of the pumps from independent emergency buses. The third AFW pump is powered by a different means, a steam driven turbine supplied with steam from a source that is not isolated by closure of the MSIVs.

The AFW System is configured into ~~[~~three~~]~~ trains. The AFW System is 2 considered OPERABLE when the components and flow paths required to provide redundant AFW flow to the steam generators are OPERABLE. This requires that the two motor driven AFW pumps be OPERABLE in ~~[~~two~~]~~ diverse paths, each supplying AFW to separate steam generators. 2 The turbine driven AFW pump is required to be OPERABLE with redundant steam supplies from each of ~~[~~two~~]~~ main steam lines upstream 2 of the MSIVs, and shall be capable of supplying AFW to any of the steam generators. The piping, valves, instrumentation, and controls in the required flow paths are also required to be OPERABLE. 3

The LCO is modified by a Note indicating that one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4. This is because of the reduced heat removal requirements and short period of time in MODE 4 during which the AFW is required and the insufficient steam available in MODE 4 to power the turbine driven AFW pump.

BASES

APPLICABILITY

In MODES 1, 2, and 3, the AFW System is required to be OPERABLE in the event ~~that~~ it is called upon to function when ~~the~~ MFW is lost. In addition, the AFW System is required to supply enough makeup water to replace the steam generator secondary inventory, lost as the unit cools to MODE 4 conditions. 1

In MODE 4 the AFW System may be used for heat removal via the steam generators.

In MODE 5 or 6, the steam generators are not normally used for heat removal, and the AFW System is not required.

ACTIONS

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The LCO 3.0.4.b Note prohibits application of the LCO 3.0.4.b exception when entering MODE 1 if the plant does not depend on AFW for startup. If the plant does depend on AFW for startup, the Note should state, "LCO 3.0.4.b is not applicable."~~ 4
~~--~~

A Note prohibits the application of LCO 3.0.4.b to an inoperable AFW train ~~[when entering MODE 1]~~. There is an increased risk associated with ~~[~~entering a MODE or other specified condition in the Applicability~~]~~ ~~[entering MODE 1]~~ with an AFW train inoperable and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance. 5

~~[~~ A.1 2

If the turbine driven AFW train is inoperable due to one inoperable steam supply, or if a turbine driven pump is inoperable for any reason while in MODE 3 immediately following refueling, action must be taken to restore the inoperable equipment to an OPERABLE status within 7 days. The 7 day Completion Time is reasonable, based on the following reasons:

a. For the inoperability of the turbine driven AFW pump due to one inoperable steam supply, the 7 day Completion Time is reasonable since there is a redundant steam supply line for the turbine driven pump and the turbine driven train is still capable of performing its specified function for most postulated events.

b. For the inoperability of a turbine driven AFW pump while in MODE 3 immediately subsequent to a refueling, the 7 day Completion Time is reasonable due to the minimal decay heat levels in this situation.

BASES

ACTIONS (continued)

c. For both the inoperability of the turbine driven pump due to one inoperable steam supply and an inoperable turbine driven AFW pump while in MODE 3 immediately following a refueling outage, the 7 day Completion Time is reasonable due to the availability of redundant OPERABLE motor driven AFW pumps, and due to the low probability of an event requiring the use of the turbine driven AFW pump.

Condition A is modified by a Note which limits the applicability of the Condition for an inoperable turbine driven AFW pump in MODE 3 to when the unit has not entered MODE 2 following ~~a~~ refueling. Condition A allows one AFW train to be inoperable for 7 days vice the 72 hour Completion Time in Condition B. This longer Completion Time is based on the reduced decay heat following refueling and prior to the reactor being critical. ~~]~~ 1 2

B.1

With one of the required AFW trains (pump or flow path) inoperable in MODE 1, 2, or 3 ~~[~~for reasons other than Condition A~~]~~, action must be taken to restore OPERABLE status within 72 hours. This Condition includes the loss of two steam supply lines to the turbine driven AFW pump. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the AFW System, the time needed for repairs, and the low probability of a DBA occurring during this time period. 2

C.1 and C.2

With one of the required motor driven AFW trains (pump or flow path) inoperable and the turbine driven AFW train inoperable due to one inoperable steam supply, action must be taken to restore the affected equipment to OPERABLE status within ~~[24] [~~48~~]~~ hours. Assuming no single active failures when in this condition, the accident (a feedline break (FLB) or main steam line break (MSLB)) could result in the loss of the remaining steam supply to the turbine driven AFW pump due to the faulted steam generator (SG). ~~In this condition, the AFW System may no longer be able to meet the required flow to the SGs assumed in the safety analysis, [either due to the analysis requiring flow from two AFW pumps or due to the remaining AFW pump having to feed a faulted SG]~~. 2 3 1

BASES

ACTIONS (continued)

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Licensees should adopt the appropriate Completion Time based on their plant design. The 24 hour Completion Time is applicable to plants that can no longer meet the safety analysis requirement of 100% AFW flow to the SG(s) assuming no single active failure and a FLB or MSLB resulting in the loss of the remaining steam supply to the turbine driven AFW pump. The 48 hour Completion Time is applicable to plants that can still meet the safety analysis requirement of 100% AFW flow to the SG(s) assuming no single active failure and a FLB or MSLB resulting in the loss of the remaining steam supply to the turbine driven AFW pump.~~
~~---~~ 4

~~[The 24 hour Completion Time is reasonable based on the remaining OPERABLE steam supply to the turbine driven AFW pump, the availability of the remaining OPERABLE motor driven AFW pump, and the low probability of an event occurring that would require the inoperable steam supply to be available for the turbine driven AFW pump.]~~ 2

~~[~~ The 48 hour Completion Time is reasonable based on the fact that the remaining motor driven AFW train is capable of providing 100% of the AFW flow requirements, and the low probability of an event occurring that would challenge the AFW system.

D.1 and D.2

When Required Action A.1, ~~[~~B.1, C.1, or C.2~~]~~ cannot be completed within the required Completion Time, or if two AFW trains are inoperable in MODE 1, 2, or 3 for reasons other than Condition C, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within ~~[~~18~~]~~ hours. 3 2 2

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

In MODE 4 with two AFW trains inoperable, operation is allowed to continue because only one motor driven pump AFW train is required in accordance with the Note that modifies the LCO. Although not required, the unit may continue to cool down and initiate RHR.

BASES

ACTIONS (continued)

E.1

If all ~~[three]~~ AFW trains are inoperable in MODE 1, 2, or 3, the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting a cooldown with nonsafety related equipment. In such a condition, the unit should not be perturbed by any action, including a power change, that might result in a trip. The seriousness of this condition requires that action be started immediately to restore one AFW train to OPERABLE status. 2

Required Action E.1 is modified by a Note indicating that all required MODE changes are suspended until one AFW train is restored to OPERABLE status. In this case, LCO 3.0.3 is not applicable because it could force the unit into a less safe condition.

F.1

In MODE 4, either the reactor coolant pumps or the RHR loops can be used to provide forced circulation. This is addressed in LCO 3.4.6, "RCS Loops - MODE 4." With the ~~one~~ required AFW train inoperable, action must be taken to immediately restore the inoperable train to OPERABLE status. The immediate Completion Time is consistent with LCO 3.4.6. 6

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

Verifying the correct alignment for manual, power operated, and automatic valves in the AFW System water and steam supply flow paths provides assurance that the proper flow paths will exist for AFW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position.

~~[~~ The SR is modified by a Note that states one or more AFW trains may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually (i.e., remotely or locally, as appropriate) realigned to the AFW mode of operation, provided it is not otherwise inoperable. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be 2

BASES

SURVEILLANCE REQUIREMENTS (continued)

used during startup, shutdown, hot standby operations, and hot shutdown operations for steam generator level control, and these manual operations are an accepted function of the AFW System, OPERABILITY (i.e., the intended safety function) continues to be maintained. ~~]~~ 2

~~[The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~ 7

~~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.~~ 4
~~-----]~~

SR 3.7.5.2

Verifying that each AFW pump's developed head at the flow test point is greater than or equal to the required developed head ensures that AFW pump performance has not degraded during the cycle. Flow and differential head are normal tests of centrifugal pump performance required by the ASME Code (Ref 2). Because it is undesirable to introduce cold AFW into the steam generators while they are operating, this testing is performed on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. Performance of inservice testing discussed in the ASME Code (Ref. 2) (only required at 3-month intervals) satisfies this requirement.

~~[~~ This SR is modified by a Note indicating that the SR should be deferred until suitable test conditions are established. This deferral is required because there is insufficient steam pressure to perform the test. ~~]~~ 2

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.5.3

This SR verifies that AFW can be delivered to the appropriate steam generator in the event of any accident or transient that generates an ESFAS, or in the event the CSTs become depleted, by demonstrating that each automatic valve in the flow path actuates to its correct position on an actual or simulated actuation signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. ~~[The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The [18] month Frequency is acceptable based on operating experience and the design reliability of the equipment.~~ 1 7

~~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.~~
~~-----]~~ 4

~~[~~ The SR is modified by ~~a Note that states~~ two Notes. Note 1 states that one or more AFW trains may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually (i.e., remotely or locally, as appropriate) realigned to the AFW mode of operation, provided it is not otherwise inoperable. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be used during startup, shutdown, hot standby operations, and hot shutdown operations for steam generator level control, and these manual operations are an accepted function of the AFW System, OPERABILITY (i.e., the intended safety function) continues to be maintained. ~~]~~ INSERT 5 2 8

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8 **INSERT 5**

Note 2 states that the SR is only required to be met in MODES 1, 2, and 3. It is not required to be met in MODE 4, since the AFW train is only required for the purposes of removing decay heat when the SG is relied upon for heat removal. The operation of the AFW train is by manual means and automatic startup of the AFW train is not required.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.5.4

This SR verifies that the AFW pumps will start in the event of any accident or transient that generates an ESFAS by demonstrating that each AFW pump starts automatically on an actual or simulated actuation signal in MODES 1, 2, and 3. In MODE 4, the required pump is already operating and the autostart function is not required. ~~[The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.~~ 7

~~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.~~
~~-----]~~ 4

This SR is modified by ~~[a] [two]~~ three Note~~[s]~~. ~~[~~Note 1 indicates that the SR may be deferred until suitable test conditions are established. This deferral is required because there is insufficient steam pressure to perform the test.~~]~~ 8 3 2
~~[The~~ Note ~~[~~2~~]~~ states that one or more AFW trains may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually (i.e., remotely or locally, as appropriate) realigned to the AFW mode of operation, provided it is not otherwise inoperable. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be used during startup, shutdown, hot standby operations, and hot shutdown operations for steam generator level control, and these manual operations are an accepted function of the AFW System. OPERABILITY (i.e., the intended safety function) continues to be maintained. ~~]~~ INSERT 6 2 8

8 **INSERT 6**

Note 3 states that the SR is only required to be met in MODES 1, 2, and 3. It is not required to be met in MODE 4, since the AFW train is only required for the purposes of removing decay heat when the SG is relied upon for heat removal. The operation of the AFW train is by manual means and automatic startup of the AFW train is not required.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[SR 3.7.5.5~~

~~This SR verifies that the AFW is properly aligned by verifying the flow paths from the CST to each steam generator prior to entering MODE 2 after more than 30 days in any combination of MODE 5 or 6 or defueled. OPERABILITY of AFW flow paths must be verified before sufficient core heat is generated that would require the operation of the AFW System during a subsequent shutdown. The Frequency is reasonable, based on engineering judgement and other administrative controls that ensure that flow paths remain OPERABLE. To further ensure AFW System alignment, flow path OPERABILITY is verified following extended outages to determine no misalignment of valves has occurred. This SR ensures that the flow path from the CST to the steam generators is properly aligned.]~~ 2

~~REVIEWER'S NOTE~~

~~This SR is not required by those units that use AFW for normal startup and shutdown.~~ 3

REFERENCES

1. U FSAR, Section ~~[~~10.4.~~9~~7.2~~]~~. 2
2. ASME Code for Operation and Maintenance of Nuclear Power Plants.

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.5 BASES, AUXILIARY FEEDWATER (AFW) SYSTEM

1. 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.

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. Editorial changes made for enhanced clarity.

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.

5. The previous Reviewer's Note states that the LCO 3.0.4.b Note prohibits application of the LCO 3.0.4.b exception when entering MODE 1 if the plant does not depend on AFW for startup. If the plant does depend on AFW for startup, the Note should state, “LCO 3.0.4.b is not applicable.” SQN depends on AFW for startup and therefore the bracketed information is not applicable to SQN and is deleted.

6. Changes are made to be consistent with the Specification.

7. ISTS SR 3.7.5.1, SR 3.7.5.3 and SR 3.7.5.4 (ITS SR 3.7.5.1, SR 3.7.5.3 and SR 3.7.5.4) are bracketed providing two options for controlling the Frequencies of Surveillance Requirements. The brackets have been removed and SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

8. ISTS LCO 3.7.5 Note states that only one AFW train is required to be OPERABLE in MODE 4. In addition, the Applicability states that the MODE 4 requirement is applicable only when the steam generator (SG) is relied upon for heat removal. The ISTS 3.7.5 Bases state that the purpose of the AFW train is only to remove decay heat from the SG in MODE 4. Thus, automatic operation of the AFW train is not required in MODE 4. Therefore, a Note has been added to ISTS SR 3.7.5.3 and SR 3.7.5.4 (Note 2 to SR 3.7.5.3 and Note 3 to SR 3.7.5.4) stating that the SRs are only required to be met in MODES 1, 2, and 3 (i.e., they are not required to be met in MODE 4). Changes have been made to the Bases to reflect these changes to the Specification.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.5, AUXILIARY FEEDWATER (AFW) SYSTEM

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

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ATTACHMENT 6

ITS 3.7.6, CONDENSATE STORAGE TANK (CST)

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

ITS | A01 | ITS 3.7.6

PLANT SYSTEMS

CONDENSATE STORAGE TANK

LIMITING CONDITION FOR OPERATION

LCO 3.7.6 / SR 3.7.6.1 — 3.7.1.3 A condensate storage tank system (CST) shall be OPERABLE with a level of at least 240,000 gallons of water.

Applicability — APPLICABILITY: MODES 1, 2 and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTION:

ACTION A — With the condensate storage tank system inoperable, within 4 hours either:

a. ~~Restore the CST to OPERABLE status or~~ be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours without reliance on steam generator for heat removal, or — A02

ACTION B

b. Verify by administrative means OPERABILITY of the ~~Essential Raw Cooling Water System as a~~ backup supply to the auxiliary feedwater pumps* and restore the condensate storage tank to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours without reliance on steam generator for heat removal. — LA01

ACTION A / ACTION B

In accordance with the Surveillance Frequency Control Program — LA02

SURVEILLANCE REQUIREMENTS

SR 3.7.6.1 — 4.7.1.3.1 The condensate storage tank system shall be demonstrated OPERABLE ~~at least once per 12 hours~~ by verifying the level is within its limits ~~when the tank is the supply source for the auxiliary feedwater pumps~~. — A03

ACTION A — * OPERABILITY shall be verified once per 12 hours following initial verification.

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ITS

A01

ITS 3.7.6

PLANT SYSTEMS

CONDENSATE STORAGE TANK

LIMITING CONDITION FOR OPERATION

LCO 3.7.6 3.7.1.3 A condensate storage tank system (CST) shall be OPERABLE with a level of at least
SR 3.7.6.1 240,000 gallons of water.

Applicability APPLICABILITY: MODES 1, 2 and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTION:

ACTION A With the condensate storage tank system inoperable, within 4 hours either:

A02

a. ~~Restore the CST to OPERABLE status or~~ be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours without reliance on steam generator for heat removal, or

ACTION B

LA01

b. Verify by administrative means OPERABILITY of the ~~Essential Raw Cooling Water System as a~~ backup supply to the auxiliary feedwater pumps* and restore the condensate storage tank to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours without reliance on steam generator for heat removal.

ACTION A

ACTION B

In accordance with the Surveillance Frequency Control Program

LA02

SURVEILLANCE REQUIREMENTS

SR 3.7.6.1 4.7.1.3.1 The condensate storage tank system shall be demonstrated OPERABLE ~~at least once per 12 hours~~ by verifying the level is within its limits ~~when the tank is the supply source for the auxiliary feedwater pumps~~.

A03

ACTION A * OPERABILITY shall be verified once per 12 hours following initial verification.

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DISCUSSION OF CHANGES
ITS 3.7.6, CONDENSATE STORAGE TANK (CST)

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 The CTS 3.7.1.3 ACTIONS provide two compensatory actions for when the CST is found to be inoperable. CTS 3.7.1.3 ACTION a allows four hours to restore the CST to OPERABLE status or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours. CTS 3.7.1.3 ACTION b alternatively allows 4 hours to verify by administrative means the OPERABILITY of the Essential Raw Cooling Water System as a backup supply to the auxiliary feedwater pumps and restore the CST tank to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours. ITS 3.7.6 Required Action A.1 requires the verification by administrative means of an OPERABLE backup water supply at a Completion Time of 4 hours and once per 12 hours thereafter and Required Action A.2 requires the CST to be restored to OPERABLE status within 7 days. This changes the CTS by deleting the alternative requirement in CTS 3.7.1.3 ACTION a to restore the CST to OPERABLE status within 4 hours.

This change is acceptable because the requirements have not changed. The opportunity to restore the equipment to OPERABLE status is always available. ITS LCO 3.0.2 states that upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met. If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated. Therefore based on ITS LCO 3.0.2 restoration is always an option. This change is considered administrative because the technical requirements have not changed.

A03 CTS 4.7.1.3.1 states, in part, that the CST shall be demonstrated OPERABLE when the tank is the supply source for the auxiliary feedwater pumps. ITS SR 3.7.6.1 states that the CST level must be verified to be within the specified limit. This changes the CTS by not stating that the Surveillance must be performed when the CST is the supply source for the auxiliary feedwater pumps.

The purpose of CTS 4.7.1.3.1 is to ensure the CST is OPERABLE when it is the supply source for the auxiliary feedwater pumps. CTS 4.0.3 states, in part, "Surveillance requirements do not have to be performed on inoperable equipment." ITS SR 3.0.1 states "Surveillances do not have to be performed on inoperable equipment or variables outside specified limits." If the CST is not capable of supplying the auxiliary feedwater pumps, the CST is considered inoperable and the ITS 3.7.6 ACTION A must be entered. Furthermore, since

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DISCUSSION OF CHANGES
ITS 3.7.6, CONDENSATE STORAGE TANK (CST)

inoperable equipment does not have to be tested, the removal of the phrase "when the tank is the supply source for the auxiliary feedwater pumps" is acceptable. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.7.1.3.b requires the Essential Raw Cooling Water System to be demonstrated as a backup supply to the auxiliary feedwater pumps. ITS 3.7.6 Required Action A.1 requires the verification of OPERABILITY of a backup water supply. This changes the CTS by moving the detail that the Essential Raw Cooling Water System provides the backup supply for the auxiliary feedwater pumps from the CTS to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to verify by administrative means OPERABILITY of a backup water supply when the CST is found to be inoperable. Also, this change is acceptable because the removed information will be adequately controlled in ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA02 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.7.1.3.1 requires verification that the condensate storage tank level is within limits, at least once per 12 hours. ITS SR 3.7.6.1 requires a similar Surveillance and specifies the periodic Frequency as, "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequency for this SR and associated Bases to the Surveillance Frequency Control Program.

The removal of these details related to Surveillance Requirement Frequencies 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 existing Surveillance Frequencies are removed from Technical Specifications and placed under

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DISCUSSION OF CHANGES
ITS 3.7.6, CONDENSATE STORAGE TANK (CST)

licensee control pursuant to the methodology described in NEI 04-10. A new program (Surveillance Frequency Control Program) is being added to the Administrative Controls section of the Technical Specifications describing the control of Surveillance Frequencies. The surveillance test requirements remain in the Technical Specifications. The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. This change is designated as a less restrictive removal of detail change, because the Surveillance Frequency is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

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

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

3.7.1.3 LCO 3.7.6 The CST shall be OPERABLE.

Applicability APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION b, Footnote * A. CST inoperable.	A.1 Verify by administrative means OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND	
	A.2 Restore CST to OPERABLE status.	7 days
ACTION a ACTION b B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Be in MODE 4, without reliance on steam generator for heat removal.	~~[24]~~ 18 hours 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
3.7.1.3, 4.7.1.3.1	SR 3.7.6.1	Verify the CST level is ≥ ~~[110,000~~ 240,000 gal~~]~~.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1 3

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CTS

CST
3.7.6

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

3.7.1.3 LCO 3.7.6 The CST shall be OPERABLE.

Applicability APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

CTS	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION b, Footnote *	A. CST inoperable.	A.1 Verify by administrative means OPERABILITY of backup water supply. AND A.2 Restore CST to OPERABLE status.	4 hours AND Once per 12 hours thereafter 7 days
ACTION a ACTION b	B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4, without reliance on steam generator for heat removal.	6 hours ~~[24]~~ 18 hours

1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
3.7.1.3, 4.7.1.3.1	SR 3.7.6.1	Verify the CST level is ≥ ~~[110,000~~ 240,000 gal~~]~~.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1 3

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JUSTIFICATION FOR DEVIATIONS
ITS 3.7.6, CONDENSATE STORAGE TANK (CST)

1. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant 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. ISTS SR 3.7.6.1 provides two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

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

B 3.7 PLANT SYSTEMS

B 3.7.6 Condensate Storage Tank (CST)

BASES

BACKGROUND

The CST provides the preferred ~~a safety grade~~ source of water to the steam generators for removing decay and sensible heat from the Reactor Coolant System (RCS). The CST provides a passive flow of water, by gravity, to the Auxiliary Feedwater (AFW) System (LCO 3.7.5). The steam produced is released to the atmosphere by the main steam safety valves or the atmospheric relief ~~dump~~ valves. The AFW pumps operate with a continuous recirculation to the CST. 1

When the main steam isolation valves are open, the preferred means of heat removal is to discharge steam to the condenser by the nonsafety grade path of the steam dump ~~bypass~~ valves. The condensed steam is returned to the CST by the hotwell ~~condensate transfer~~ pump. This has the advantage of conserving condensate while minimizing releases to the environment. 1

INSERT 1 1

~~Because the CST is a principal component in removing residual heat from the RCS, it is designed to withstand earthquakes and other natural phenomena, including missiles that might be generated by natural phenomena. The CST is designed to Seismic Category I to ensure availability of the feedwater supply. Feedwater is also available from alternate sources.~~

A description of the CST is found in the UFSAR, Section ~~[~~9.2.6~~]~~ (Ref. 1). 1 2

APPLICABLE SAFETY ANALYSES

The CST provides cooling water to remove decay heat and to cool down the unit following ~~all~~ events in the accident analysis as discussed in the UFSAR, Chapters ~~[~~6~~]~~ and ~~[~~15~~]~~ (Refs. 2 and 3, respectively). For anticipated operational occurrences and accidents that do not affect the OPERABILITY of the steam generators, the analysis assumption is generally 2 hours ~~30 minutes~~ at MODE 3, steaming through the MSSVs, followed by a cooldown to residual heat removal (RHR) entry conditions at the design cooldown rate. 1 2 1

The limiting event for the condensate volume is the large feedwater line break coincident with a loss of offsite power. Single failures that also affect this event include the following:

a. Failure of the diesel generator powering the motor driven AFW pump to the unaffected steam generator (requiring additional steam to drive the remaining AFW pump turbine) and

b. Failure of the steam driven AFW pump (requiring a longer time for cooldown using only one motor driven AFW pump).

1 **INSERT 1**

The CST consists of a non-seismic qualified carbon steel tank with a capacity of 385,000 gallons. The CST is the preferred and primary source of clean water for the AFW System. The essential raw cooling water (ERCW) system is the backup source of water in addition to being the Safety Grade source of water. The ERCW supply can be manually aligned based on CST level or automatically aligned on a two-out-of-three low-pressure signal in the condensate suction line.

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BASES

APPLICABLE SAFETY ANALYSES (continued)

These are not usually the limiting failures in terms of consequences for these events. 1

A nonlimiting event is considered ~~in CST inventory determinations is~~ a break in either the main feedwater or AFW line near where the two join. This break has the potential for dumping condensate until terminated by operator action~~, since the Emergency Feedwater Actuation System would not detect a difference in pressure between the steam generators for this break location~~. This loss of condensate inventory is partially compensated for by the retention of steam generator inventory. 1

The CST satisfies Criteria 2 and 3 of 10 CFR 50.36(c)(2)(ii).

LCO

~~To satisfy accident analysis assumptions,~~ The CST must contain sufficient cooling water to remove decay heat for ~~[30 minutes]~~ 2 hours following a reactor trip from 100.7 ~~102~~% RTP, and then to cool down the RCS to RHR entry conditions, assuming a coincident loss of offsite power ~~and the most adverse single failure~~. In doing this, it must retain sufficient water to ensure adequate net positive suction head for the AFW pumps during cooldown~~, as well as account for any losses from the steam driven AFW pump turbine, or before isolating AFW to a broken line~~. 2 1

The CST level required is equivalent to a usable volume of ≥ 240,000 ~~[110,000~~ gallons~~]~~, which is based on holding the unit in MODE 3 for ~~[~~2~~]~~ hours, followed by a cooldown to RHR entry conditions within the following 6 hours ~~at [75]°F/hour~~. This basis is established in Reference 4 and is the minimum ~~exceeds the~~ volume required for a plant cooldown ~~by the accident analysis~~. 2 1

The OPERABILITY of the CST is determined by maintaining the tank level at or above the minimum required level.

APPLICABILITY

In MODES 1, 2, and 3, and in MODE 4, when steam generator is being relied upon for heat removal, the CST is required to be OPERABLE.

In MODE 5 or 6, the CST is not required because the AFW System is not required.

ACTIONS

A.1 and A.2

If the CST is not OPERABLE, the OPERABILITY of the backup supply should be verified by administrative means within 4 hours and once every 12 hours thereafter. OPERABILITY of the backup feedwater supply must include verification that the flow paths from the backup water supply to the AFW pumps are OPERABLE, and that the backup supply has the required volume of water available. The CST must be restored to OPERABLE status within 7 days, because the backup supply may be

BASES

ACTIONS (continued)

performing this function in addition to its normal functions. The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. Additionally, verifying the backup water supply every 12 hours is adequate to ensure the backup water supply continues to be available. The 7 day Completion Time is reasonable, based on an OPERABLE backup water supply being available, and the low probability of an event occurring during this time period requiring the CST.

B.1 and B.2

If the CST cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4, without reliance on the steam generator for heat removal, within ~~[24]~~ 18 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. 2

SURVEILLANCE REQUIREMENTS

SR 3.7.6.1

This SR verifies that the CST contains the required volume of cooling water. ~~(The required CST volume may be single value or a function of RCS conditions.) [The 12 hour Frequency is based on operating experience and the need for operator awareness of unit evolutions that may affect the CST inventory between checks. Also, the 12 hour Frequency is considered adequate in view of other indications in the control room, including alarms, to alert the operator to abnormal deviations in the CST level.~~

~~OR~~ 3

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.~~ 4
~~--]~~

BASES

REFERENCES

U

1. FSAR, Section ~~[~~9.2.6~~]~~.

2. FSAR, Chapter ~~[~~6~~]~~.

3. FSAR, Chapter ~~[~~15~~]~~.

4. UFSAR, Section 10.4.7

2

1

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B 3.7 PLANT SYSTEMS

B 3.7.6 Condensate Storage Tank (CST)

BASES

BACKGROUND

The CST provides the preferred ~~a safety grade~~ source of water to the steam generators for removing decay and sensible heat from the Reactor Coolant System (RCS). The CST provides a passive flow of water, by gravity, to the Auxiliary Feedwater (AFW) System (LCO 3.7.5). The steam produced is released to the atmosphere by the main steam safety valves or the atmospheric ~~dump~~ relief valves. The AFW pumps operate with a continuous recirculation to the CST. 1 1

When the main steam isolation valves are open, the preferred means of heat removal is to discharge steam to the condenser by the nonsafety grade path of the steam ~~bypass~~ dump valves. The condensed steam is returned to the CST by the ~~condensate transfer~~ hotwell pump. This has the advantage of conserving condensate while minimizing releases to the environment. 1

INSERT 1 1

~~Because the CST is a principal component in removing residual heat from the RCS, it is designed to withstand earthquakes and other natural phenomena, including missiles that might be generated by natural phenomena. The CST is designed to Seismic Category I to ensure availability of the feedwater supply. Feedwater is also available from alternate sources.~~

A description of the CST is found in the U FSAR, Section ~~[~~9.2.6~~]~~ (Ref. 1). 1 2

APPLICABLE SAFETY ANALYSES

The CST provides cooling water to remove decay heat and to cool down the unit following ~~all~~ events in the accident analysis as discussed in the U FSAR, Chapters ~~[~~6~~]~~ and ~~[~~15~~]~~ (Refs. 2 and 3, respectively). For anticipated operational occurrences and accidents that do not affect the OPERABILITY of the steam generators, the analysis assumption is generally 2 hours ~~30 minutes~~ at MODE 3, steaming through the MSSVs, followed by a cooldown to residual heat removal (RHR) entry conditions at the design cooldown rate. 1 2 1

The limiting event for the condensate volume is the large feedwater line break coincident with a loss of offsite power. Single failures that also affect this event include the following:

a. Failure of the diesel generator powering the motor driven AFW pump to the unaffected steam generator (requiring additional steam to drive the remaining AFW pump turbine) and

b. Failure of the steam driven AFW pump (requiring a longer time for cooldown using only one motor driven AFW pump).

1 **INSERT 1**

The CST consists of a non-seismic qualified carbon steel tank with a capacity of 385,000 gallons. The CST is the preferred and primary source of clean water for the AFW System. The essential raw cooling water (ERCW) system is the backup source of water in addition to being the Safety Grade source of water. The ERCW supply can be manually aligned based on CST level or automatically aligned on a two-out-of-three low-pressure signal in the condensate suction line.

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BASES

APPLICABLE SAFETY ANALYSES (continued)

These are not usually the limiting failures in terms of consequences for these events. 1

A nonlimiting event is considered ~~in CST inventory determinations is~~ a break in either the main feedwater or AFW line near where the two join. This break has the potential for dumping condensate until terminated by operator action~~, since the Emergency Feedwater Actuation System would not detect a difference in pressure between the steam generators for this break location~~. This loss of condensate inventory is partially compensated for by the retention of steam generator inventory. 1

The CST satisfies Criteria 2 and 3 of 10 CFR 50.36(c)(2)(ii).

LCO

~~To satisfy accident analysis assumptions,~~ the CST must contain sufficient cooling water to remove decay heat for ~~[30 minutes]~~ 2 hours following a reactor trip from 100.7 ~~102~~% RTP, and then to cool down the RCS to RHR entry conditions, assuming a coincident loss of offsite power ~~and the most adverse single failure~~. In doing this, it must retain sufficient water to ensure adequate net positive suction head for the AFW pumps during cooldown~~, as well as account for any losses from the steam driven AFW pump turbine, or before isolating AFW to a broken line~~. 2 1

The CST level required is equivalent to a usable volume of ≥ 240,000 ~~[110,000~~ gallons~~]~~, which is based on holding the unit in MODE 3 for ~~[~~2~~]~~ hours, followed by a cooldown to RHR entry conditions within the following 6 hours ~~at [75]°F/hour~~. This basis is established in Reference 4 and is the minimum ~~exceeds the~~ volume required for a plant cooldown ~~by the accident analysis~~. 2 1

The OPERABILITY of the CST is determined by maintaining the tank level at or above the minimum required level.

APPLICABILITY

In MODES 1, 2, and 3, and in MODE 4, when steam generator is being relied upon for heat removal, the CST is required to be OPERABLE.

In MODE 5 or 6, the CST is not required because the AFW System is not required.

ACTIONS

A.1 and A.2

If the CST is not OPERABLE, the OPERABILITY of the backup supply should be verified by administrative means within 4 hours and once every 12 hours thereafter. OPERABILITY of the backup feedwater supply must include verification that the flow paths from the backup water supply to the AFW pumps are OPERABLE, and that the backup supply has the required volume of water available. The CST must be restored to OPERABLE status within 7 days, because the backup supply may be

BASES

ACTIONS (continued)

performing this function in addition to its normal functions. The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. Additionally, verifying the backup water supply every 12 hours is adequate to ensure the backup water supply continues to be available. The 7 day Completion Time is reasonable, based on an OPERABLE backup water supply being available, and the low probability of an event occurring during this time period requiring the CST.

B.1 and B.2

If the CST cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4, without reliance on the steam generator for heat removal, within ~~[24]~~ 18 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. 2

SURVEILLANCE REQUIREMENTS

SR 3.7.6.1

This SR verifies that the CST contains the required volume of cooling water. ~~(The required CST volume may be single value or a function of RCS conditions.) [The 12 hour Frequency is based on operating experience and the need for operator awareness of unit evolutions that may affect the CST inventory between checks. Also, the 12 hour Frequency is considered adequate in view of other indications in the control room, including alarms, to alert the operator to abnormal deviations in the CST level.~~

~~OR~~ 3

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.~~ 4
~~--]~~

BASES

REFERENCES

U

1. FSAR, Section ~~[~~9.2.6~~]~~.

2. FSAR, Chapter ~~[~~6~~]~~.

3. FSAR, Chapter ~~[~~15~~]~~.

4. UFSAR, Section 10.4.7

2

1

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JUSTIFICATION FOR DEVIATIONS
ITS 3.7.6 BASES, CONDENSATE STORAGE TANK (CST)

1. 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.

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. ISTS SR 3.7.6.1 (ITS SR 3.7.6.1) provide two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

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.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.6, CONDENSATE STORAGE TANK (CST)

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

ATTACHMENT 7

ITS 3.7.7, COMPONENT COOLING WATER SYSTEM (CCS)

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

ITS ITS 3.7.7

A01

PLANT SYSTEMS

3/4.7.3 COMPONENT COOLING WATER SYSTEM

LA01

LIMITING CONDITION FOR OPERATION

trains A04

LCO 3.7.7 3.7.3 At least two ~~independent~~ component cooling water ~~loops~~ shall be OPERABLE.

Applicability APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Add proposed Required Action A.1 Note A02

ACTION A With only one component cooling water ~~loop~~ OPERABLE, restore at least two ~~loops~~ to OPERABLE status within 72 hours train A04

ACTION B or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

trains A04

SURVEILLANCE REQUIREMENTS

A03

4.7.3 At least two component cooling water ~~loops~~ shall be demonstrated OPERABLE:

Add proposed SR 3.7.7.1 Note L03

SR 3.7.7.1 a. ~~At least once per 31 days on a STAGGERED TEST BASIS by~~ verifying that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

in the flowpath A05

SR 3.7.7.2 b. ~~At least once per 18 months, during shutdown,~~ by verifying that each component cooling system pump starts automatically on ~~a Safety Injection test~~ signal. L01

an actual or simulated actuation L02

In accordance with the Surveillance Frequency Control Program LA02

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PLANT SYSTEMS

3/4.7.3 COMPONENT COOLING WATER SYSTEM

LA01

LIMITING CONDITION FOR OPERATION

trains

A04

LCO 3.7.7 3.7.3 At least two ~~independent~~ component cooling water ~~loops~~ shall be OPERABLE.

Applicability APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Add proposed Required Action A.1 Note

A02

ACTION A With only one component cooling water ~~loop~~ OPERABLE, restore at least two ~~loops~~ to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within

train

A04

ACTION B the following 30 hours.

trains

A04

SURVEILLANCE REQUIREMENTS

A03

4.7.3 At least two component cooling water ~~loops~~ shall be demonstrated OPERABLE:

Add proposed SR 3.7.7.1 Note

L03

SR 3.7.7.1 a. ~~At least once per 31 days on a STAGGERED TEST BASIS by~~ verifying that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

A05

in the flowpath

SR 3.7.7.2 b. ~~At least once per 18 months, during shutdown,~~ by verifying that each component cooling system pump starts automatically on ~~a Safety Injection test~~ signal.

L01

an actual or simulated actuation

L02

In accordance with the Surveillance Frequency Control Program

LA02

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DISCUSSION OF CHANGES
ITS 3.7.7, COMPONENT COOLING WATER SYSTEM (CCS)

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 3.7.3 does not specifically require Conditions to be entered for systems supported by inoperable component cooling water loops. OPERABILITY of supported systems is addressed through the definition of OPERABILITY for each system, and appropriate LCO Actions are taken. ITS 3.7.7 Required Action A.1 Note states, "Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by CCS." ITS LCO 3.0.6 provides an exception to ITS LCO 3.0.2 stating, "When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered." This changes the CTS by adding a specific statement to require supported system Conditions and Required Actions to be entered; whereas, in the CTS this would be done without the Note.

This change is acceptable because the addition of the ITS Note reflects the CTS requirement to take applicable Actions for inoperable systems. The ITS Note is required because of the addition of ITS LCO 3.0.6, and because the requirement to declare a supported system inoperable is retained. This change is designated as administrative because it does not result in any technical changes to the CTS.

A03 CTS 4.7.3.a does not contain explicit guidance concerning CCS loop OPERABILITY when isolating CCS flow to individual components. ITS SR 3.7.7.1 contains a Note, which states, "Isolation of CCS flow to individual components does not render the CCS inoperable." This changes the CTS by adding an allowance that is not explicitly stated in the CTS.

The purpose of CTS 4.7.3.a is to provide assurance that CCS is available to the appropriate plant components. This change is acceptable because by current use and application of the CTS, isolation of a component supplied with component cooling water does not necessarily result in a CCS train(s) being considered inoperable, but the respective component may be declared inoperable for its system. This change clarifies this application. This change is designated as administrative because it does not result in technical changes to the CTS.

A04 CTS 3.7.3 requires two component cooling water loops to be OPERABLE. CTS 3.7.3 ACTION requires that with only one component cooling water loop OPERABLE to restore at least two loops to OPERABLE status. CTS 4.7.3

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requires at least two component cooling water loops to be demonstrated OPERABLE by verifying that each valve is in its correct position and by verifying that each component cooling system pump starts automatically. ITS 3.7.7 contains similar LCO, ACTION and Surveillances but identifies Component Cooling Water loops as trains. This changes the CTS by changing the word "loops" to "trains."

This change is acceptable because the components in the CTS loop for component cooling water will continue to be required in the ITS component cooling water train. This is a change in presentation only and does not result in technical changes to the CTS.

A05 CTS 4.7.3.a requires verification that each component cooling water valve (manual, power operated, or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position. ITS SR 3.7.7.1 requires verification that each component cooling water manual, power operated, and automatic valve in the flow path servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in the correct position. This changes the CTS by adding the words "in the flow path" to the CTS.

The purpose of CTS 4.7.3.a is to ensure all valves in the component cooling water flow path are in the correct position. The addition of the words "in the flow path" to CTS 4.7.3.a does not change the intent of the Surveillance Requirement. Each manual, power operated, and automatic valve servicing safety related equipment that is not locked, sealed, or otherwise secured in position will continue to be verified to be in the correct position. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.7.3 states that at least two "independent" component cooling loops shall be OPERABLE. ITS 3.7.7 requires two CCS trains to be OPERABLE, but does not contain detail that the trains must be independent. This changes the CTS by moving the detail that the CCS trains are independent to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not

DISCUSSION OF CHANGES
ITS 3.7.7, COMPONENT COOLING WATER SYSTEM (CCS)

necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for two CCS trains to be OPERABLE. In addition, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA02 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.7.3.a requires verification that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position, at least once per 31 days. CTS 4.7.3.b requires verification that each component cooling system pump starts automatically on a Safety Injection test signal, at least once per 18 months, during shutdown. ITS SR 3.7.7.1 and SR 3.7.7.2 require similar Surveillances and specify the periodic Frequency as, "In accordance with the Surveillance Frequency Control Program." In addition, DOC L01 proposes deleting "during shutdown" from ITS SR 3.7.7.2. This changes the CTS by moving the specified Frequencies for these SRs and associated Bases to the Surveillance Frequency Control Program.

The removal of these details related to Surveillance Requirement Frequencies 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 existing Surveillance Frequencies are removed from Technical Specifications and placed under licensee control pursuant to the methodology described in NEI 04-10. A new program (Surveillance Frequency Control Program) is being added to the Administrative Controls section of the Technical Specifications describing the control of Surveillance Frequencies. The surveillance test requirements remain in the Technical Specifications. The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. This change is designated as a less restrictive removal of detail change, because the Surveillance Frequencies are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 (*Category 8 – Deletion of Surveillance Requirement Shutdown Performance Requirements)* CTS 4.7.3.b requires verification that each component cooling system pump starts automatically on a Safety Injection test signal at least once per 18 months, during shutdown. ITS SR 3.7.7.2 requires the same testing every 18 months, with no restriction as to when (i.e., during shutdown) the test can be performed (refer to DOC LA01 for the relocation of the Frequency to the SII

DISCUSSION OF CHANGES
ITS 3.7.7, COMPONENT COOLING WATER SYSTEM (CCS)

Surveillance Frequency Control Program). This changes the CTS by deleting the requirement to perform the Surveillance only during shutdown.

The purpose of CTS 4.7.3.b is to ensure the component cooling water loops are OPERABLE. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. The proposed Surveillance does not include the restriction on unit conditions. The control of the unit conditions, appropriate to perform the test, is an issue for procedures and scheduling, which give proper regard for surveillance performance and their effect on the safe operation of the plant, and has been determined by the NRC Staff to be unnecessary as a Technical Specification restriction. As indicated in Generic Letter 91-04, allowing this control is consistent with the vast majority of other Technical Specification Surveillances that do not dictate unit conditions for the Surveillance. This change is designated as less restrictive because the Surveillance may be performed at plant conditions other than shutdown.

L02 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* CTS 4.7.3.b requires verifying that each component cooling system pump starts automatically on a Safety Injection test signal. ITS SR 3.7.7.2 specifies that the signal may be from either an "actual" or simulated (i.e., test) signal. This changes the CTS by explicitly allowing the use of either an actual or simulated signal for the test.

The purpose of CTS 4.7.3.b is to ensure that the component cooling system pumps operate correctly upon receipt of an actuation signal. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. Equipment cannot discriminate between an "actual," "simulated," or "test" signal and, therefore, the results of the testing are unaffected by the type of signal used to initiate the test. The change also allows a simulated signal to be used, if necessary. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L03 *(Category 7 – Relaxation of Surveillance Frequency)* CTS 4.7.3.a requires, in part, that two component cooling water loops be demonstrated OPERABLE by verifying that each CCS valve is in its correct position at least once per 31 days on a STAGGERED TEST BASIS. ITS SR 3.7.7.1 requires this same verification every 31 days. This changes the CTS by deleting the requirement to perform the verification on a STAGGERED TEST BASIS. See DOC LA01 for the discussion on moving the 31 day Frequency for ITS SR 3.7.7.1 to the Surveillance Frequency Control Program.

The purpose of CTS 4.7.3 is to ensure that proper flow paths exist for CCS operation. The CTS 1.35 STAGGERED TEST BASIS definition, defines a testing schedule for n systems, subsystems, or trains by dividing the specified test interval into n equal subintervals, with the testing of one system, subsystem, or train occurring at the beginning of each subinterval. In other words, a Surveillance Requirement to verify the OPERABILITY of each train in a two train

DISCUSSION OF CHANGES
ITS 3.7.7, COMPONENT COOLING WATER SYSTEM (CCS)

system at a Frequency of 31 days on a STAGGERED TEST BASIS would result in each train being verified OPERABLE every 31 days, with one train being verified in alternating 15.5 day subintervals. Removal of the STAGGERED TEST BASIS scheduling requirement does not change the requirement to verify the OPERABILITY of each train every 31 days, but rather removes the requirement to schedule testing every 15.5 days. The new Surveillance Frequency will not change the testing Frequency of each train. The intent of the CTS staggered testing requirement is to evenly distribute testing of each CCS train across the system. However, as each CCS train is independent, no increase in reliability or safety is achieved by evenly staggering the testing subintervals. This change is acceptable, because removal of the staggered testing requirement will increase operational and scheduling flexibility without decreasing safety or system reliability. This change is designated as less restrictive, because the intervals between performances of the Surveillances for the CCS trains can be larger or smaller under the ITS than under the CTS.

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

CTS

CCS ~~CCW System~~ 1
3.7.7

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water ~~(CCW)~~ System (CCS) 1

3.7.3 LCO 3.7.7 Two CC~~W~~S trains shall be OPERABLE. 1

Applicability APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CC~~W~~S train inoperable.	A.1	--------------NOTE-------------- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by CC~~W~~S. -------------------------------------- Restore CC~~W~~S train to OPERABLE status.	 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 AND B.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

ACTION (A) 1 1 1

ACTION (B)

CTS

CCS ~~CCW System~~ 1
3.7.7

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
4.7.3.a SR 3.7.7.1	-----NOTE----- Isolation of CC~~W~~ S flow to individual components does not render the CC~~W~~ ~~System~~ S inoperable. ----- Verify each CC~~W~~ S manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1 2
~~SR 3.7.7.2~~	~~Verify each CCW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~ 3
4.7.3.b SR 3.7.7.~~3~~ 2	Verify each CC~~W~~ S pump starts automatically on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1 3 2

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3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water ~~(CCW)~~ System (CCS) 1

3.7.3 LCO 3.7.7 Two CC~~W~~ S trains shall be OPERABLE. 1

Applicability APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
ACTION A. One CC~~W~~ S train inoperable. 1	A.1	--------------NOTE-------------- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by CC~~W~~ S. 1 ------------------------------------- Restore CC~~W~~ S train to OPERABLE status. 1	72 hours
ACTION B. Required Action and associated Completion Time of Condition A not met.	B.1 <u>AND</u> B.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
4.7.3.a	SR 3.7.7.1	-----------------------------NOTE----------------------------- Isolation of CC~~W~~ S flow to individual components does not render the CC~~W System~~ S inoperable. --- Verify each CC~~W~~ S manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1 2
	~~SR 3.7.7.2~~	~~Verify each CCW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~ 3
4.7.3.b	SR 3.7.7.~~3~~ 2	Verify each CC~~W~~ S pump starts automatically on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1 3 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.7, COMPONENT COOLING WATER SYSTEM (CCS)

1. 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.

2. ISTS SR 3.7.7.1 and ISTS SR 3.7.7.3 (ITS SR 3.7.7.1 and ITS SR 3.7.7.2) provide two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

3. ISTS SR 3.7.7.2 requires verification that each automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated signal. However, the SQN CCS does not include valves that receive an actuation signal. Therefore, this surveillance is unnecessary and has not been included in the SQN ITS. Subsequent SRs have been renumbered to reflect this change.

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

B 3.7 PLANT SYSTEMS

B 3.7.7 Component Cooling Water ~~(CCW)~~ System (CCS) 1

BASES

BACKGROUND

The ~~CCW System~~ CCS provides a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient. During normal operation, the ~~CCW System~~ also provides this function for various nonessential components, as well as the spent fuel storage pool. The ~~CCW System~~ serves as a barrier to the release of radioactive byproducts between potentially radioactive systems and the ~~Service Water~~ Essential Raw Cooling Water (ERCW) System, and thus to the environment. 1

~~A typical CCW System~~ The CCS is arranged as two independent, full capacity cooling loops, and has isolatable nonsafety related components. INSERT 1 Each safety related train includes a full capacity pump, surge tank, heat exchanger, piping, valves, and instrumentation. Each safety related train is powered from a separate ~~bus~~ board. INSERT 2 An open surge tank in the system provides ~~pump trip protective functions~~ an automatic makeup function to ensure that sufficient net positive suction head is available. The pump in each train is automatically started on receipt of a safety injection signal~~, and all nonessential components are isolated.~~ INSERT 3 1 6 1 6 1 6

Additional information on the design and operation of the system, along with a list of the components served, is presented in the U FSAR, Section ~~[~~9.2.~~2]~~ 1 (Ref. 1). The principal safety related function of the ~~CCW System~~ CCS is the removal of decay heat from the reactor via the Residual Heat Removal (RHR) System. This may be during a normal or post accident cooldown and shutdown. 1 2 1

APPLICABLE SAFETY ANALYSES

The design basis of the ~~CCW System~~ CCS is for one ~~CCW~~ train to remove the post loss of coolant accident (LOCA) heat load from the containment sump during the recirculation phase, with a maximum ~~CCW~~ temperature of ~~[120]~~ 104.5°F (Ref. ~~2~~ 1). The Emergency Core Cooling System (ECCS) LOCA and containment OPERABILITY LOCA each model the maximum and minimum performance of the ~~CCW System~~, respectively. The normal temperature of the ~~CCW~~ is ~~[80]~~ 35 - 95°F, and, during unit cooldown to MODE 5 ($T_{\cancel{cold}}$ avg < ~~[~~200~~]~~°F), a maximum temperature of ~~95°F is assumed~~ 120°F can be approached. This prevents the containment sump fluid from increasing in temperature during the recirculation phase following a LOCA, and provides a gradual reduction in the temperature of this fluid as it is supplied to the Reactor Coolant System (RCS) by the ECCS pumps. 2 2 2 1

The ~~CCW System~~ CCS is designed to perform its function with a single failure of any active component, assuming a loss of offsite power. 1

6 **INSERT 1**

Although each unit's trains are independent, the CCS B trains share components. Up to three of the five CCS pumps may be shared and the two B train component cooling heat exchangers are shared between the two units. Normally, only CCS pump C-S (common-spare) will be aligned to the train B headers of both units along with both 0B heat exchangers, however, either pump 1B-B (Unit 1) or 2B-B (Unit 2) can be realigned to the train B headers if necessary.

6 **INSERT 2**

, except for the C-S pump which is powered from shared boards. An OPERABLE C-S pump is powered from the Unit 2 "B" board. It can, however, be manually transferred to the Unit 1 "A" board. When the C-S pump is powered from the Unit 1 "A" board, it is considered inoperable because the configuration is not tested.

6 **INSERT 3**

(unit specific safety injection signals except for the C-S pump, which starts from either units safety injection signal)

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BASES

APPLICABLE SAFETY ANALYSES (continued)

The ~~CCW System~~ CCS also functions to cool the unit from RHR entry conditions ($T_{\cancel{cold}}$ avg < ~~[~~350~~]~~°F), to MODE 5 ($T_{\cancel{cold}}$ avg < ~~[~~200~~]~~°F), during normal and post accident operations. The time required to cool from ~~[~~350~~]~~°F to ~~[~~200~~]~~°F is a function of the number of ~~CCW~~ CCS and RHR trains operating. One ~~CCW~~ CCS train is sufficient to remove decay heat during subsequent operations with $T_{\cancel{cold}}$ avg < ~~[~~200~~]~~°F. This assumes a maximum ~~service water~~ ERCW temperature of ~~[95]~~ 87°F occurring simultaneously with the maximum heat loads on the system. 1 1 2 1 1 2

The ~~CCW System~~ CCS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

The ~~CCW~~ CCS trains are independent of each other to the degree that each has separate controls and power supplies and the operation of one does not depend on the other. In the event of a DBA, one ~~CCW~~ CCS train is required to provide the minimum heat removal capability assumed in the safety analysis for the systems to which it supplies cooling water. To ensure this requirement is met, two trains of ~~CCW~~ CCS must be OPERABLE. At least one ~~CCW~~ CCS train will operate assuming the worst case single active failure occurs coincident with a loss of offsite power. 1 1 1

A ~~CCW~~ CCS train is considered OPERABLE when: 1

a. The pump and associated surge tank are OPERABLE and

b. The associated piping, valves, heat exchanger, and instrumentation and controls required to perform the safety related function are OPERABLE.

The isolation of ~~CCW~~ CCS from other components or systems not required for safety may render those components or systems inoperable but does not affect the OPERABILITY of the ~~CCW System~~ CCS. 1 1

APPLICABILITY

In MODES 1, 2, 3, and 4, the ~~CCW System~~ CCS is a normally operating system, which must be prepared to perform its post accident safety functions, primarily RCS heat removal, which is achieved by cooling the RHR heat exchanger. 1

In MODE 5 or 6, the OPERABILITY requirements of the ~~CCW System~~ CCS are determined by the systems it supports. 1

BASES

ACTIONS

A.1

Required Action A.1 is modified by a Note indicating that the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," be entered if an inoperable CCS ~~CCW~~ train results in an inoperable RHR loop. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. 1

If one CCS ~~CCW~~ train is inoperable, action must be taken to restore OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE CCS ~~CCW~~ train is adequate to perform the heat removal function. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this period. 1 1

B.1 and B.2

If the CCS ~~CCW~~ train cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. 1

SURVEILLANCE REQUIREMENTS

SR 3.7.7.1

This SR is modified by a Note indicating that the isolation of the CCS ~~CCW~~ flow to individual components may render those components inoperable but does not affect the OPERABILITY of the CCS ~~CCW System~~. 1 1

Verifying the correct alignment for manual, power operated, and automatic valves in the CCS ~~CCW~~ flow path provides assurance that the proper flow paths exist for CCS ~~CCW~~ operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. 1

~~[The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~ 4

1

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~ 4

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 3.7.7.2~~

~~This SR verifies proper automatic operation of the CCW valves on an actual or simulated actuation signal. The CCW System is a normally operating system that cannot be fully actuated as part of routine testing during normal operation. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ 5

~~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.~~
~~--]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.7.~~3~~ 2 1

CCS

This SR verifies proper automatic operation of the ~~CCW~~ pumps on an actual or simulated (i.e., Safety Injection) actuation signal. The ~~CCW System~~ is a normally operating system that cannot be fully actuated as part of routine testing during normal operation. ~~[The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ 1 2 4

~~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
~~--]~~

REFERENCES

1. U FSAR, Section ~~[~~9.2.~~2]~~ 1. 1 2

~~2. FSAR, Section [6.2].~~ 1

B 3.7 PLANT SYSTEMS

B 3.7.7 Component Cooling Water ~~(CCW)~~ (CCS) System 1

BASES

BACKGROUND

The ~~CCW System~~ CCS provides a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient. During normal operation, the ~~CCW System~~ CCS also provides this function for various nonessential components, as well as the spent fuel storage pool. The ~~CCW System~~ CCS serves as a barrier to the release of radioactive byproducts between potentially radioactive systems and the ~~Service Water~~ Essential Raw Cooling Water (ERCW) System, and thus to the environment. 1

~~A typical CCW System~~ The CCS is arranged as two independent, full capacity cooling loops, and has isolatable nonsafety related components. INSERT 1 Each safety related train includes a full capacity pump, surge tank, heat exchanger, piping, valves, and instrumentation. Each safety related train is powered from a separate ~~bus~~ board. INSERT 2 An open surge tank in the system provides ~~pump trip protective functions~~ an automatic makeup function to ensure that sufficient net positive suction head is available. The pump in each train is automatically started on receipt of a safety injection signal. INSERT 3 ~~and all nonessential components are isolated.~~ 1 6 1 6 1 6

Additional information on the design and operation of the system, along with a list of the components served, is presented in the U FSAR, Section [9.2.~~2~~ 1] (Ref. 1). The principal safety related function of the ~~CCW System~~ CCS is the removal of decay heat from the reactor via the Residual Heat Removal (RHR) System. This may be during a normal or post accident cooldown and shutdown. 1 2 1

APPLICABLE SAFETY ANALYSES

The design basis of the ~~CCW System~~ CCS is for one ~~CCW~~ CCS train to remove the post loss of coolant accident (LOCA) heat load from the containment sump during the recirculation phase, with a maximum ~~CCW~~ CCS temperature of ~~[120]~~ 104.5°F (Ref. ~~2~~ 1). The Emergency Core Cooling System (ECCS) LOCA and containment OPERABILITY LOCA each model the maximum and minimum performance of the ~~CCW System~~ CCS, respectively. The normal temperature of the ~~CCW~~ CCS is ~~[80]~~ 35 - 95°F, and, during unit cooldown to MODE 5 ($T_{\cancel{cold}}$ avg < [200]°F), a maximum temperature of ~~95°F is assumed~~ 120°F can be approached. This prevents the containment sump fluid from increasing in temperature during the recirculation phase following a LOCA, and provides a gradual reduction in the temperature of this fluid as it is supplied to the Reactor Coolant System (RCS) by the ECCS pumps. 2 2 2 1

The ~~CCW System~~ CCS is designed to perform its function with a single failure of any active component, assuming a loss of offsite power. 1

6 **INSERT 1**

Although each unit's trains are independent, the CCS B trains share components. Up to three of the five CCS pumps may be shared and the two B train component cooling heat exchangers are shared between the two units. Normally, only CCS pump C-S (common-spare) will be aligned to the train B headers of both units along with both 0B heat exchangers, however, either pump 1B-B (Unit 1) or 2B-B (Unit 2) can be realigned to the train B headers if necessary.

6 **INSERT 2**

, except for the C-S pump which is powered from shared boards. An OPERABLE C-S pump is powered from the Unit 2 "B" board. It can, however, be manually transferred to the Unit 1 "A" board. When the C-S pump is powered from the Unit 1 "A" board, it is considered inoperable because the configuration is not tested.

6 **INSERT 3**

(unit specific safety injection signals except for the C-S pump, which starts from either units safety injection signal)

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BASES

APPLICABLE SAFETY ANALYSES (continued)

The CCS ~~CCW System~~ also functions to cool the unit from RHR entry conditions ($T_{\cancel{cold}}$ avg < ~~[~~350~~]~~°F), to MODE 5 ($T_{\cancel{cold}}$ avg < ~~[~~200~~]~~°F), during normal and post accident operations. The time required to cool from ~~[~~350~~]~~°F to ~~[~~200~~]~~°F is a function of the number of CCS ~~CCW~~ and RHR trains operating. One CCS ~~CCW~~ train is sufficient to remove decay heat during subsequent operations with $T_{\cancel{cold}}$ avg < ~~[~~200~~]~~°F. This assumes a maximum ERCW ~~service water~~ temperature of 87 ~~[95]~~°F occurring simultaneously with the maximum heat loads on the system. 1 1 2 1 1 2

The CCS ~~CCW System~~ satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

The CCS ~~CCW~~ trains are independent of each other to the degree that each has separate controls and power supplies and the operation of one does not depend on the other. In the event of a DBA, one CCS ~~CCW~~ train is required to provide the minimum heat removal capability assumed in the safety analysis for the systems to which it supplies cooling water. To ensure this requirement is met, two trains of CCS ~~CCW~~ must be OPERABLE. At least one CCS ~~CCW~~ train will operate assuming the worst case single active failure occurs coincident with a loss of offsite power. 1 1 1

A CCS ~~CCW~~ train is considered OPERABLE when: 1

a. The pump and associated surge tank are OPERABLE and

b. The associated piping, valves, heat exchanger, and instrumentation and controls required to perform the safety related function are OPERABLE.

The isolation of CCS ~~CCW~~ from other components or systems not required for safety may render those components or systems inoperable but does not affect the OPERABILITY of the CCS ~~CCW System~~. 1 1

APPLICABILITY

In MODES 1, 2, 3, and 4, the CCS ~~CCW System~~ is a normally operating system, which must be prepared to perform its post accident safety functions, primarily RCS heat removal, which is achieved by cooling the RHR heat exchanger. 1

In MODE 5 or 6, the OPERABILITY requirements of the CCS ~~CCW System~~ are determined by the systems it supports. 1

BASES

ACTIONS

A.1

Required Action A.1 is modified by a Note indicating that the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," be entered if an inoperable ~~CCW~~ CCS train results in an inoperable RHR loop. 1
This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

If one ~~CCW~~ CCS train is inoperable, action must be taken to restore 1
OPERABLE status within 72 hours. In this Condition, the remaining
OPERABLE ~~CCW~~ CCS train is adequate to perform the heat removal function. 1
The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this period.

B.1 and B.2

If the ~~CCW~~ CCS train cannot be restored to OPERABLE status within the 1
associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.7.1

This SR is modified by a Note indicating that the isolation of the ~~CCW~~ CCS 1
flow to individual components may render those components inoperable
but does not affect the OPERABILITY of the ~~CCW System~~ CCS. 1

Verifying the correct alignment for manual, power operated, and automatic valves in the ~~CCW~~ CCS flow path provides assurance that the proper flow paths exist for ~~CCW~~ CCS operation. 1
This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position.

~~[The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~ 4

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BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~ 4

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 3.7.7.2~~

~~This SR verifies proper automatic operation of the CCW valves on an actual or simulated actuation signal. The CCW System is a normally operating system that cannot be fully actuated as part of routine testing during normal operation. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ 5

~~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

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.7.~~3~~ 2 1

This SR verifies proper automatic operation of the ~~CCW~~ CCS pumps on an actual or simulated (i.e., Safety Injection) actuation signal. The ~~CCW System~~ CCS is a normally operating system that cannot be fully actuated as part of routine testing during normal operation. ~~[The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ 1 2 4

~~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
~~---]~~

REFERENCES

1. U FSAR, Section ~~[~~9.2.~~2]~~ 1. 1 2

~~2. FSAR, Section [6.2].~~ 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.7 BASES, COMPONENT COOLING WATER SYSTEM (CCS)

1. 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.

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. ISTS SR 3.7.7.1 and SR 3.7.7.3 (ITS SR 3.7.7.1 and SR 3.7.7.2) provide two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

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

6. The ISTS Bases Background contains information associated with a typical Component Cooling Water plant arrangement. Sequoyah Nuclear Plant is a two unit site with shared selected component cooling system components. The typical component cooling system information has been deleted with plant specific information inserted.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.7, COMPONENT COOLING WATER SYSTEM (CCS)

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

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ATTACHMENT 8

ITS 3.7.8, ESSENTIAL RAW COOLING WATER (ERCW) SYSTEM

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

ITS ITS 3.7.8

A01

PLANT SYSTEMS

3/4.7.4 ESSENTIAL RAW COOLING WATER SYSTEM

LIMITING CONDITION FOR OPERATION

A02 trains

3.7.8 3.7.4 At least two ~~independent~~ essential raw cooling water (ERCW) ~~loops~~ shall be OPERABLE. LA01

Applicability APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Add proposed Required Action A.1 Note 1

Add proposed Required Action A.1 Note 2 A03

train A02

ACTION A With only one ERCW ~~loop~~ OPERABLE, restore at least two ~~loop~~s to OPERABLE status within 72 hours or

ACTION B be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

A02 trains

SR 3.7.8.1
SR 3.7.8.2
SR 3.7.8.3 4.7.4 At least two ERCW ~~loops~~ shall be demonstrated OPERABLE:

A04 Add proposed SR 3.7.8.1 Note

SR 3.7.8.1 a. ~~At least once per 31 days~~ by verifying that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

A05 in the flow path

In accordance with the Surveillance Frequency Control Program LA02

SR 3.7.8.2
SR 3.7.8.3 b. ~~At least once per 18 months~~, ~~during shutdown~~, by:

L03 in the flow path A05

that is not lock, sealed, or otherwise secured in position,

SR 3.7.8.2 1. Verifying that each automatic valve servicing safety related equipment actuates to its correct position on ~~a Safety Injection test~~ signal.

an actual or simulated actuation L01

SR 3.7.8.3 2. Verifying that each ERCW pump starts automatically on ~~a Safety Injection test~~ signal.

L02

ITS ITS 3.7.8

A01

PLANT SYSTEMS

3/4.7.4 ESSENTIAL RAW COOLING WATER SYSTEM

LIMITING CONDITION FOR OPERATION

A02 trains

3.7.8 3.7.4 At least two ~~independent~~ essential raw cooling water (ERCW) ~~loops~~ shall be OPERABLE. LA01

Applicability APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Add proposed Required Action A.1 Note 1

Add proposed Required Action A.1 Note 2

A03 train A02

ACTION A
ACTION B
With only one ERCW ~~loop~~ OPERABLE, restore at least two ~~loop~~s to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

A02 trains

SR 3.7.8.1
SR 3.7.8.2
SR 3.7.8.3
4.7.4 At least two ERCW ~~loops~~ shall be demonstrated OPERABLE:

A04 Add proposed SR 3.7.8.1 Note

SR 3.7.8.1 a. ~~At least once per 31 days~~ by verifying that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

in the flow path A05

In accordance with the Surveillance Frequency Control Program LA02

SR 3.7.8.2
SR 3.7.8.3
b. ~~At least once per 18 months~~, ~~during shutdown~~, by:

L03 in the flow path A05

that is not lock, sealed, or otherwise secured in position, L01

SR 3.7.8.2 1. Verifying that each automatic valve servicing safety related equipment actuates to its correct position on ~~a Safety Injection test~~ signal.

an actual or simulated actuation

SR 3.7.8.3 2. Verifying that each ERCW pump starts automatically on ~~a Safety Injection test~~ signal.

L02

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DISCUSSION OF CHANGES
ITS 3.7.8, ESSENTIAL RAW COOLING WATER (ERCW) SYSTEM

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 3.7.4, 3.7.4 ACTION, and 4.7.4 refer to the essential raw cooling water (ERCW) system as being divided into two loops. ITS 3.7.8, and ACTION A, refer to the ERCW system as being divided into two trains. This changes the CTS by exchanging the word "loop(s)" for the word "train(s)".

This change is acceptable because UFSAR Section 9.2.2 states, "The ERCW System consists of eight ERCW pumps, four traveling water screens, four screen wash pumps, and four strainers located within the ERCW pumping station, and associated piping and valves as shown in Figures 9.2.2-1 through 9.2.2-5." UFSAR Section 9.2.2 also states, "Water is supplied to the auxiliary building from the ERCW pumping station through four independent sectionalized supply headers designated as 1A, 2A, 1B, and 2B. Four ERCW pumps are assigned to train A, and four to train B. The two headers associated with the same train (i.e., 1A/2A or 1B/2B) may be cross-tied to provide greater flexibility." ITS 3.7.8 Bases for ERCW defines an ERCW train as described in the UFSAR for the features required to operate for accident analysis, but only requires two pumps to be OPERABLE (with one pump being fed from each shutdown board). This change is designated as administrative because it does not result in any technical changes to the SII
CTS.

A03 CTS 3.7.4 does not specifically require Conditions to be entered for systems supported by inoperable Essential Raw ~~Water~~ Cooling Water (ERCW) loops. OPERABILITY of supported systems is addressed through the definition of OPERABILITY for each system, and appropriate LCO Actions are taken. ITS 3.7.8 Required Action A.1 Note 1 states, "Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by ERCW." Also, ITS 3.7.8 Required Action A.1 Note 2 states, "Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by ERCW ~~ECRW~~." ITS LCO 3.0.6 provides an exception to ITS LCO 3.0.2 stating, "When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered." This changes the CTS by adding a specific statement to require supported system Conditions and Required Actions to be entered; whereas, in the CTS this would be done without the Note.

This change is acceptable because the addition of the ITS Note reflects the CTS requirement to take applicable Actions for inoperable systems. The ITS Note is required because of the addition of ITS LCO 3.0.6, and because the requirement to declare

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DISCUSSION OF CHANGES
ITS 3.7.8, ESSENTIAL RAW COOLING WATER (ERCW) SYSTEM

supported system(s) inoperable is retained. This change is designated as administrative because it does not result in any technical changes to the CTS.

A04 CTS 4.7.4.a does not contain explicit guidance concerning ERCW train OPERABILITY when isolating ERCW System flow to individual components. ITS SR 3.7.8.1 contains a Note, which states, "Isolation of ERCW System flow to individual components does not render the ERCW System inoperable." This changes the CTS by providing clarification within the CTS.

The purpose of the ERCW System Technical Specification is to provide assurance that ERCW is available to the appropriate plant components. This change is acceptable because by current use and application of the CTS, isolation of a component supplied with ERCW does not necessarily result in an ERCW train(s) being considered inoperable, but the respective component may be declared inoperable for its system. This change clarifies this application. This change is designated as administrative because it does not result in technical changes to the CTS.

A05 CTS 4.7.4.a requires verification that each ERCW valve (manual, power operated, or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position. ITS SR 3.7.8.1 requires verification that each ERCW System manual, power operated, and automatic valve "in the flow path" servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in the correct position. CTS 4.7.4.1.b requires verification that each ERCW automatic valve servicing safety related equipment actuates to its correct position. ITS SR 3.7.8.2 requires verification that each ERCW System automatic valve "in the flow path" servicing safety related equipment that is not locked, sealed, or otherwise secured in position, actuates to the correct position. This changes the CTS by adding the words "in the flow path" to the CTS.

The purpose of CTS 4.7.4.a is to ensure all valves in the ERCW flow path are in the correct position. The addition of the words "in the flow path" to CTS 4.7.4.a does not change the intent of the Surveillance Requirement. Each manual, power operated, and automatic valve servicing safety related equipment that is not locked, sealed, or otherwise secured in position will continue to be verified to be in the correct position. The purpose of CTS 4.7.4.1.b is to provide assurance that each ERCW automatic valve actuates to its correct position. The addition of the words "in the flow path" to CTS 4.7.4.b does not change the intent of the Surveillance Requirement. Each ERCW automatic valve in the flow path that is not locked, sealed or otherwise secured in position, will still be checked to ensure it actuates to the correct position on an actual or simulated Safety Injection actuation signal. This change is designated as administrative because it does not result in technical changes to the CTS.

<u>MORE RESTRICTIVE CHANGES</u>

None

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DISCUSSION OF CHANGES
ITS 3.7.8, ESSENTIAL RAW COOLING WATER (ERCW) SYSTEM

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.7.4 states that two "independent" ERCW loops shall be OPERABLE. ITS 3.7.8 requires two ERCW trains to be OPERABLE, but does not contain detail that the trains must be independent. This changes the CTS by moving the detail that the ERCW trains are independent to the Bases.

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

LA02 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.7.4.a requires verification at least once per 31 days that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position. CTS 4.7.4.b.1 requires verification at least once per 18 months that each automatic valve servicing safety related equipment actuates to its correct position on a Safety Injection test signal. CTS 4.7.4.b.2 requires verification at least once per 18 months that each ERCW pump starts automatically on a Safety Injection test signal. ITS SR 3.7.8.1, SR 3.7.8.2, and SR 3.7.8.3 require similar Surveillances but specify the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for these SRs to the Surveillance Frequency Control Program.

The removal of these details related to Surveillance Requirement Frequencies 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 existing Surveillance Frequencies are removed from Technical Specifications and placed under licensee control pursuant to the methodology described in NEI 04-10. A new program (Surveillance Frequency Control Program) is being added to the Administrative Controls section of the Technical Specifications describing the control of Surveillance Frequencies. The surveillance test requirements remain in the Technical Specifications. The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. This change is designated as a less restrictive removal of detail

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change, because the Surveillance Frequencies are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.7.4.b.1 requires verification that ERCW System automatic valves actuate to their correct position. ITS SR 3.7.8.2 requires verification that ERCW System automatic valves in the flow path "that are not locked, sealed, or otherwise secured in position" actuate to the correct position on an actual or simulated actuation signal. This changes the CTS by exempting valves that are locked, sealed, or otherwise secured in position from the verification.

The purpose of CTS 4.7.4.b.1 is to provide assurance that if an event occurred requiring the ERCW System valves to be in their correct position, then those valves requiring automatic actuation would actuate to their correct position. This change is acceptable because the deleted Surveillance requirement is not necessary to verify that the equipment used to meet the LCO can perform its required functions. Thus, appropriate equipment continues to be tested in a manner and at a Frequency necessary to give confidence that the equipment can perform its assumed safety function. The change exempts valves that have already been placed in the correct position and are locked, sealed, or otherwise secured in position. Those automatic ERCW System valves that are locked, sealed, or otherwise secured in position are not required to actuate in order to perform their safety function because they are already in the required position. This change is designated as less restrictive because Surveillances that are required in the CTS will not be required in the ITS.

L02 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* CTS 4.7.4.b.1 requires verification of the automatic actuation of the ERCW System valves on a "Safety Injection test" signal. CTS 4.7.4.b.2 requires verification that each ERCW pump starts automatically on a "Safety Injection test" signal. ITS SR 3.7.8.2 and SR 3.7.8.3 specifies that the signal may be from either an "actual" or "simulated" (i.e., test) signal. This changes the CTS by explicitly allowing the use of either an actual or simulated signal for the test.

The purpose of CTS 4.7.4.b.1 and 4.7.4.b.2 is to ensure that the ERCW System valves or pumps operate correctly upon receipt of an actuation signal. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. Equipment cannot discriminate between an "actual," "simulated," or "test" signal and, therefore, the results of the testing are unaffected by the type of signal used to initiate the test. This change allows taking credit for unplanned actuation if sufficient information is collected to satisfy the Surveillance test requirements. The change also allows use of a simulated signal, if necessary. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L03 *(Category 8 – Deletion of Surveillance Requirement Shutdown Performance Requirements)* CTS 4.7.4.b.1 requires a verification that each automatic valve in the ERCW flow path actuates to the correct position at least once per 18 months during a shutdown. CTS 4.7.4.b.2. requires a verification that each ERCW pump starts

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DISCUSSION OF CHANGES
ITS 3.7.8, ESSENTIAL RAW COOLING WATER (ERCW) SYSTEM

automatically at least once per 18 months during a shutdown. ITS SR 3.7.8.2 and SR 3.7.8.3 require similar verifications every 18 months, with no restrictions as to when (i.e., during the shutdown) this test can be performed. (See DOC LA02 for the discussion on relocating the 18 month Frequency to the Frequency Control Program.) This changes the CTS by deleting the requirement to perform the Surveillance only during a shutdown.

The purpose of CTS 4.7.4.b.1 and 4.7.4.b.2 is to ensure that the ERCW automatic valves and pumps can perform their safety function. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. The proposed Surveillance does not include the restriction on unit conditions. The control of the unit conditions, appropriate to perform the test, is an issue for procedures and scheduling, which give proper regard for surveillance performance and their effect on the safe operation of the plant, and has been determined by the NRC Staff to be unnecessary as a Technical Specification restriction. As indicated in Generic Letter 91-04, allowing this control is consistent with the vast majority of other Technical Specification Surveillances that do not dictate unit conditions for the Surveillance. This change is designated as less restrictive because the Surveillance may be performed at plant conditions other than shutdown.

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

CTS

ERCW System ~~SWS~~ 1
3.7.8

3.7 PLANT SYSTEMS

3.7.8 ~~Service Water System (SWS)~~ Essential Raw Cooling Water (ERCW) System 1

LCO 3.7.4 LCO 3.7.8 Two ~~SWS~~ ERCW System trains shall be OPERABLE.

Applicability APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION DOC A03 A. One ~~SWS~~ ERCW System train inoperable.	A.1 --------------NOTES------------- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by ~~SWS~~ ERCW System. DOC A03 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by ~~SWS~~ ERCW System. ------------------------------------ Restore ~~SWS~~ ERCW System train to OPERABLE status.	72 hours 1
ACTION B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

CTS

ERCW System ~~SWS~~ 1
3.7.8

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
DOC A04 4.7.4.a	SR 3.7.8.1 -----------------------------NOTE----------------------------- Isolation of ~~SWS~~ ERCW System flow to individual components does not render the ~~SWS~~ ERCW System inoperable. --- Verify each ~~SWS~~ ERCW System manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1 2
4.7.4.b.1	SR 3.7.8.2 Verify each ~~SWS~~ ERCW System automatic valve in the flow path servicing safety related equipment that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1 2 3
4.7.4.b.2	SR 3.7.8.3 Verify each ~~SWS~~ ERCW System pump starts automatically on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1 2

CTS

ERCW System ~~SWS~~ 3.7.8 1

3.7 PLANT SYSTEMS

3.7.8 ~~Service Water System (SWS)~~ Essential Raw Cooling Water (ERCW) System 1

LCO 3.7.4 LCO 3.7.8 Two ~~SWS~~ ERCW System trains shall be OPERABLE.

Applicability APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION DOC A03 A. One ~~SWS~~ ERCW System train inoperable.	A.1 --------------NOTES------------- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by ~~SWS~~ ERCW System. DOC A03 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by ~~SWS~~ ERCW System. ------------------------------------ Restore ~~SWS~~ ERCW System train to OPERABLE status.	72 hours 1
ACTION B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

CTS

ERCW System ~~SWS~~ 1
3.7.8

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	ERCW System -----------------------------NOTE----------------------------- Isolation of ~~SWS~~ flow to individual components does not render the ~~SWS~~ inoperable. --- ERCW System ERCW System Verify each ~~SWS~~ manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
SR 3.7.8.2	ERCW System Verify each ~~SWS~~ automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal. servicing safety related equipment	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
SR 3.7.8.3	ERCW System Verify each ~~SWS~~ pump starts automatically on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

DOC A04 (SR 3.7.8.1 Note); 4.7.4.a (SR 3.7.8.1); 4.7.4.b.1 (SR 3.7.8.2); 4.7.4.b.2 (SR 3.7.8.3)

1 2 3

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.8, ESSENTIAL RAW COOLING WATER (ERCW) SYSTEM

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

2. ISTS SR 3.7.8.1, ISTS SR 3.7.8.2, and ISTS SR 3.7.8.3 (ITS SR 3.7.7.1, SR 3.7.8.2, and SR 3.7.7.3) provide two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

3. ISTS SR 3.7.8.2 has been changed to include "servicing safety related equipment" to be consistent with the current licensing basis as stated in CTS 4.7.4.b.1.

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

All changes are (1) unless otherwise noted

B 3.7 PLANT SYSTEMS

B 3.7.8 ~~Service Water System~~ Essential Raw Cooling Water (ERCW) System (~~SWS~~)

BASES

BACKGROUND

The ~~SWS~~ ERCW system provides a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient. During normal operation, and a normal shutdown, the ~~SWS~~ ERCW system also provides this function for various safety related and nonsafety related components. The safety related function is covered by this LCO.

The ~~SWS~~ ERCW system consists of two separate~~,~~ and independent 100% capacity, safety related, cooling water trains. INSERT 1 ~~Each train consists of two 100% capacity pumps, one component cooling water (CCW) heat exchanger, piping, valving, instrumentation, and two cyclone separators.~~ The pumps and valves are remote and manually aligned, except in the unlikely event of a loss of coolant accident (LOCA). The pumps aligned to the critical loops and selected by the selector switch are automatically started upon receipt of a safety injection signal, and ~~all~~ the essential valves are aligned to their post accident positions. INSERT 2 ~~The SWS also provides emergency makeup to the spent fuel pool and CCW System [and is the backup water supply to the Auxiliary Feedwater System].~~

Additional information about the design and operation of the ~~SWS~~ ERCW system, along with a list of the components served, is presented in the U FSAR, Section ~~[~~9.2.~~1~~2~~]~~ (Ref. 1). The principal safety related function of the ~~SWS~~ ERCW system is the removal of decay heat from the reactor via the ~~CCW System~~ CCS.

APPLICABLE SAFETY ANALYSES

The design basis of the ~~SWS~~ ERCW system is for one ~~SWS~~ ERCW system train, in conjunction with the ~~CCW System~~ CCS and a 100% capacity containment cooling system, to remove core decay heat following a design basis LOCA as discussed in the U FSAR, Section ~~[~~6.2~~]~~ (Ref. 2). This prevents the containment sump fluid from increasing in temperature during the recirculation phase following a LOCA and provides for a gradual reduction in the temperature of this fluid as it is supplied to the Reactor Coolant System by the ECCS pumps. The ~~SWS~~ ERCW system is designed to perform its function with a single failure of any active component, assuming the loss of offsite power.

The ~~SWS~~ ERCW system, in conjunction with the ~~CCW System~~ CCS, also cools the unit from residual heat removal (RHR), as discussed in the U FSAR, Section ~~[~~5.~~4~~5.7~~]~~, (Ref. 3) entry conditions to MODE 5 during normal and post accident operations. The time required for this evolution is a function of the number of ~~CCW~~ component cooling water and RHR System trains that are operating. One ~~SWS~~ ERCW system train is sufficient to remove decay heat during subsequent operations in MODES 5 and 6. This assumes a maximum ~~SWS~~ ERCW system temperature of ~~[95]~~ 87°F occurring simultaneously with maximum heat loads on the system.

The ~~SWS~~ ERCW system satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

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1 **INSERT 1**

The water supply and distribution system is essentially common to both units. Two common trains feed both units. Each train consists of two main supply headers, two strainers, four pumps, two traveling water screens, and associated piping, valving, and instrumentation. To meet the design requirements, with the Ultimate Heat Sink (UHS)temperature at its limit, the system requires two main supply headers, two strainers, and two pumps sharing one traveling screen.

1 **INSERT 2**

Additionally, each emergency diesel generator has two assigned ERCW pumps. The two assigned ERCW pumps are interlocked so that only the selected pump will start if offsite power is lost.

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All changes are 1 unless otherwise noted

BASES

LCO

Two ~~SWS~~ ERCW system trains are required to be OPERABLE to provide the required redundancy to ensure that the system functions to remove post accident heat loads, assuming that the worst case single active failure occurs coincident with the loss of offsite power.

An ~~SWS~~ ERCW system train is considered OPERABLE during MODES 1, 2, 3, and 4 when:

a. ~~The pump is OPERABLE~~ INSERT 3 and 1

b. The associated piping, valves, heat exchanger, and instrumentation and controls required to perform the safety related function are OPERABLE.

APPLICABILITY

In MODES 1, 2, 3, and 4, the ~~SWS~~ ERCW system is a normally operating system that is required to support the OPERABILITY of the equipment serviced by the ~~SWS~~ ERCW system and required to be OPERABLE in these MODES.

In MODES 5 and 6, the OPERABILITY requirements of the ~~SWS~~ ERCW system are determined by the systems it supports.

ACTIONS

A.1

If one ~~SWS~~ ERCW system train is inoperable, action must be taken to restore OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE ~~SWS~~ ERCW system train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE ~~SWS~~ ERCW system train could result in loss of ~~SWS~~ ERCW system function. Required Action A.1 is modified by two Notes. The first Note indicates that the applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," should be entered if an inoperable ~~SWS~~ ERCW system train results in an inoperable emergency diesel generator. The second Note indicates that the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," should be entered if an inoperable ~~SWS~~ ERCW system train results in an inoperable ~~decay heat removal train.~~ residual heat removal loop. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. The 72 hour Completion Time is based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this time period. SII

B.1 and B.2

If the ~~SWS~~ ERCW system train cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours.

1 **INSERT 3**

MEH-005

a. The ERCW system is aligned for ~~normal~~ operation with at least two ERCW pumps OPERABLE per train (with one pump fed from each 6.9 kV shutdown board) and two ERCW supply strainers are OPERABLE per train~~, or the ERCW system is aligned for one ERCW pump per train operation in accordance with Table B 3.7.9-1, or the ERCW system is aligned for one ERCW supply strainer per train operation in accordance with Table B 3.7.9-2~~;

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All changes are 1 unless otherwise noted

ERCW System ~~SWS~~
B 3.7.8

BASES

ACTIONS (continued)

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.8.1

This SR is modified by a Note indicating that the isolation of the ~~SWS~~ ERCW system components or systems may render those components inoperable, but does not affect the OPERABILITY of the ~~SWS~~ ERCW system.

Verifying the correct alignment for manual, power operated, and automatic valves in the ~~SWS~~ ERCW system flow path provides assurance that the proper flow paths exist for ~~SWS~~ ERCW system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to being locked, sealed, or secured. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

~~[The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. 4

~~-----------------------------------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.~~ 5
~~--]~~

SR 3.7.8.2

This SR verifies proper automatic operation of the ~~SWS~~ ERCW system valves on an actual or simulated actuation signal. The Safety Injection signal is the automatic actuation signal. The ~~SWS~~ ERCW system is a normally operating system that cannot be fully actuated as part of normal testing. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. ~~[The [18] month Frequency is based on the need to perform this~~ 4

ERCW System ~~SWS~~
B 3.7.8

All changes are 1 unless otherwise noted

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~

~~OR~~

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

4

~~-----------------------------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.~~
~~--]~~

5

SR 3.7.8.3

This SR verifies proper automatic operation of the ~~SWS~~ ERCW system pumps on an actual or simulated (i.e., Safety Injection) actuation signal. The ~~SWS~~ ERCW system is a normally operating system that cannot be fully actuated as part of normal testing during normal operation. ~~[The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~

OR

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

4

~~-----------------------------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.~~
~~--]~~

5

ERCW System ~~SWS~~
B 3.7.8

1 All changes are unless otherwise noted

BASES

U 2

REFERENCES	1. FSAR, Section ~~[~~9.2.~~1]~~.
	2. FSAR, Section ~~[~~6.2~~]~~.
	3. FSAR, Section ~~[~~5.~~4~~.7~~]~~.

5

3

All changes are 1 unless otherwise noted

ERCW System ~~SWS~~
B 3.7.8

B 3.7 PLANT SYSTEMS

B 3.7.8 ~~Service Water System~~ (~~SWS~~)

Essential Raw Cooling Water (ERCW) System

BASES

ERCW system

BACKGROUND

The ~~SWS~~ provides a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient. During normal operation, and a normal shutdown, the ~~SWS~~ also provides this function for various safety related and nonsafety related components. The safety related function is covered by this LCO.

ERCW system and independent

The ~~SWS~~ consists of two separate, 100% capacity, safety related, cooling water trains. ~~Each train consists of two 100% capacity pumps, one component cooling water (CCW) heat exchanger, piping, valving, instrumentation, and two cyclone separators.~~ INSERT 1 The pumps and valves are remote and manually aligned, except in the unlikely event of a loss of coolant accident (LOCA). The pumps aligned to the critical loops are automatically started upon receipt of a safety injection signal, and ~~all~~ the essential valves are aligned to their post accident positions. ~~The SWS also provides emergency makeup to the spent fuel pool and CCW System [and is the backup water supply to the Auxiliary Feedwater System].~~ INSERT 2 2 3

and selected by the selector switch

ERCW system

Additional information about the design and operation of the ~~SWS~~, along with a list of the components served, is presented in the U FSAR, Section ~~[~~9.2.~~1~~2~~]~~ (Ref. 1). The principal safety related function of the ~~SWS~~ is the removal of decay heat from the reactor via the ~~CCW System~~. 3

CCS ERCW system

APPLICABLE SAFETY ANALYSES

The design basis of the ~~SWS~~ is for one ~~SWS~~ train, in conjunction with the ~~CCW System~~ and a 100% capacity containment cooling system, to remove core decay heat following a design basis LOCA as discussed in the U FSAR, Section ~~[~~6.2~~]~~ (Ref. 2). This prevents the containment sump fluid from increasing in temperature during the recirculation phase following a LOCA and provides for a gradual reduction in the temperature of this fluid as it is supplied to the Reactor Coolant System by the ECCS pumps. The ~~SWS~~ is designed to perform its function with a single failure of any active component, assuming the loss of offsite power. 3

ERCW system

ERCW system CCS

The ~~SWS~~, in conjunction with the ~~CCW System~~, also cools the unit from residual heat removal (RHR), as discussed in the U FSAR, Section ~~[~~5.~~4~~5.7~~]~~, (Ref. 3) entry conditions to MODE 5 during normal and post accident operations. The time required for this evolution is a function of the number of ~~CCW~~ component cooling water and RHR System trains that are operating. One ~~SWS~~ ERCW system train is sufficient to remove decay heat during subsequent operations in MODES 5 and 6. This assumes a maximum ~~SWS~~ temperature of ~~[95]~~ 87°F occurring simultaneously with maximum heat loads on the system. 3

The ~~SWS~~ satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

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1 **INSERT 1**

The water supply and distribution system is essentially common to both units. Two common trains feed both units. Each train consists of two main supply headers, two strainers, four pumps, two traveling water screens, and associated piping, valving, and instrumentation. To meet the design requirements, with the Ultimate Heat Sink (UHS)temperature at its limit, the system requires two main supply headers, two strainers, and two pumps sharing one traveling screen.

1 **INSERT 2**

Additionally, each emergency diesel generator has two assigned ERCW pumps. The two assigned ERCW pumps are interlocked so that only the selected pump will start if offsite power is lost.

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All changes are 1 unless otherwise noted

BASES

LCO

Two ~~SWS~~ ERCW system trains are required to be OPERABLE to provide the required redundancy to ensure that the system functions to remove post accident heat loads, assuming that the worst case single active failure occurs coincident with the loss of offsite power.

An ~~SWS~~ ERCW system train is considered OPERABLE during MODES 1, 2, 3, and 4 when:

a. ~~The pump is OPERABLE~~ INSERT 3 and 1

b. The associated piping, valves, heat exchanger, and instrumentation and controls required to perform the safety related function are OPERABLE.

APPLICABILITY

In MODES 1, 2, 3, and 4, the ~~SWS~~ ERCW system is a normally operating system that is required to support the OPERABILITY of the equipment serviced by the ~~SWS~~ ERCW system and required to be OPERABLE in these MODES.

In MODES 5 and 6, the OPERABILITY requirements of the ~~SWS~~ ERCW system are determined by the systems it supports.

ACTIONS

A.1

If one ~~SWS~~ ERCW system train is inoperable, action must be taken to restore OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE ~~SWS~~ ERCW system train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE ~~SWS~~ ERCW system train could result in loss of ~~SWS~~ ERCW system function. Required Action A.1 is modified by two Notes. The first Note indicates that the applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," should be entered if an inoperable ~~SWS~~ ERCW system train results in an inoperable emergency diesel generator. The second Note indicates that the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," should be entered if an inoperable ~~SWS~~ ERCW system train results in an inoperable ~~decay heat removal train.~~ residual heat removal loop This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. The 72 hour Completion Time is based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this time period. SII

B.1 and B.2

If the ~~SWS~~ ERCW system train cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours.

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1 **INSERT 3**

MEH-005

a. The ERCW system is aligned for ~~normal~~ operation with at least two ERCW pumps OPERABLE per train (with one pump fed from each 6.9 kV shutdown board) and two ERCW supply strainers are OPERABLE per train~~, or the ERCW system is aligned for one ERCW pump per train operation in accordance with Table B 3.7.9-1, or the ERCW system is aligned for one ERCW supply strainer per train operation in accordance with Table B 3.7.9-2~~;

All changes are 1 unless otherwise noted

ERCW System ~~SWS~~
B 3.7.8

BASES

ACTIONS (continued)

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.8.1

This SR is modified by a Note indicating that the isolation of the ERCW system ~~SWS~~ components or systems may render those components inoperable, but does not affect the OPERABILITY of the ERCW system ~~SWS~~.

Verifying the correct alignment for manual, power operated, and automatic valves in the ERCW system ~~SWS~~ flow path provides assurance that the proper flow paths exist for ERCW system ~~SWS~~ operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to being locked, sealed, or secured. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

~~[The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. 4

~~-----------------------------------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.~~ 5
~~---]~~

SR 3.7.8.2

This SR verifies proper automatic operation of the ERCW system ~~SWS~~ valves on an actual or simulated actuation signal. The Safety Injection signal is the automatic actuation signal. The ERCW system ~~SWS~~ is a normally operating system that cannot be fully actuated as part of normal testing. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. ~~[The [18] month Frequency is based on the need to perform this~~ 4

ERCW System ~~SWS~~
B 3.7.8

All changes are 1 unless otherwise noted

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. 4

~~-----------------------------------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.~~
~~--]~~ 5

SR 3.7.8.3

This SR verifies proper automatic operation of the ERCW system ~~SWS~~ pumps on an actual or simulated (i.e., Safety Injection) actuation signal. The ERCW system ~~SWS~~ is a normally operating system that cannot be fully actuated as part of normal testing during normal operation. ~~[The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. 4

~~-----------------------------------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.~~
~~--]~~ 5

1 All changes are unless otherwise noted

BASES

U 2

REFERENCES	1. FSAR, Section ~~[~~9.2.~~1]~~.
	2. FSAR, Section ~~[~~6.2~~]~~.
	3. FSAR, Section ~~[~~5.~~4~~.7~~]~~.

5

3

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JUSTIFICATION FOR DEVIATIONS
ITS 3.7.8 BASES, ESSENTIAL RAW COOLING WATER (ERCW) SYSTEM

1. 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.

2. Editorial changes made for enhanced clarity/consistency.

3. 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.

4. ISTS SR 3.7.8.1, SR 3.7.8.2, and SR 3.7.8.3 (ITS SR 3.7.8.1, SR 3.7.8.2, and SR 3.7.8.3) provide two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

5. 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.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.8, ESSENTIAL RAW COOLING WATER (ERCW) SYSTEM

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

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ATTACHMENT 9

ITS 3.7.9, ULTIMATE HEAT SINK (UHS)

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

A01

ITS

ITS 3.7.9

PLANT SYSTEMS

3/4.7.5 ULTIMATE HEAT SINK

MEH-005

LIMITING CONDITION FOR OPERATION

LCO 3.7.9 3.7.5 The ultimate heat sink shall be OPERABLE ~~with:~~

keep

SR 3.7.9.1 ~~a. A minimum water level at or above elevation 674 feet mean sea level USGS datum, and~~

SR 3.7.9.2 ~~b. An average ERCW supply header water temperature of less than or equal to 87°F, when the ERCW System is not in the alignment to support large heavy load lifts associated with the Unit 2 refueling outage 18 steam generator replacement project, and~~

~~c. An average ERCW supply header water temperature of less than or equal to 74°F, when the ERCW System is in the alignment to support large heavy load lifts associated with the Unit 2 refueling outage 18 steam generator replacement project.~~

A02

Applicability APPLICABILITY: MODES 1, 2, 3 and 4.

keep

ACTION:

~~INSERT 1~~

ACTION A ~~With the requirements of the above specification not satisfied, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours~~.

~~A02~~

In accordance with the Surveillance Frequency Control Program

LA01

SURVEILLANCE REQUIREMENTS

SR 3.7.9.1, SR 3.7.9.2 4.7.5.1 The ultimate heat sink shall be determined OPERABLE ~~at least once per 24 hours~~ by verifying ~~the average ERCW supply header temperature and water level to be within their limits.~~

~~INSERT 2~~

~~A02~~

keep

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ITS

ITS 3.7.9

A02 ~~**INSERT 1**~~

MEH-005

~~ACTION A~~ ~~a.~~ ~~With the average ERCW supply header water temperature > 81°F and ≤ 87°F, and any ERCW loop aligned to support one pump per loop OPERABILITY, and only one ERCW pump is OPERABLE on that loop, immediately declare the associated ERCW loop inoperable and comply with the ACTION requirements of Specification 3.7.4.~~

~~ACTION B~~ ~~b.~~ ~~With the average ERCW supply header water temperature ≥ 83°F and ≤ 87°F, and one ERCW supply strainer inoperable on one or more loops, immediately declare the associated ERCW loop inoperable and comply with the ACTION requirements of Specification 3.7.4.~~

~~ACTION C~~ ~~c.~~ ~~With the UHS not within limits for reasons other than ACTION a or ACTION b, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

A02 ~~**INSERT 2**~~

~~SR 3.7.9.1~~ ~~a.~~ ~~the UHS water level is ≥ 674 feet mean sea level USGS datum, and~~

~~SR 3.7.9.2~~ ~~b.~~ ~~the average ERCW supply header water temperature is:~~

~~1)~~ ~~≤ 81°F with any ERCW loop aligned to support one pump per loop OPERABILITY and only one ERCW pump OPERABLE on that loop, or~~

~~2)~~ ~~< 83°F with one ERCW supply strainer and two ERCW pumps OPERABLE on that loop, or~~

~~3)~~ ~~≤ 87°F with two ERCW supply strainers and two ERCW pumps OPERABLE per loop.~~

ITS A01 ITS 3.7.9

PLANT SYSTEMS

3/4.7.5 ULTIMATE HEAT SINK

MEH-005

LIMITING CONDITION FOR OPERATION

LCO 3.7.9 3.7.5 The ultimate heat sink shall be OPERABLE ~~with:~~ keep

SR 3.7.9.1 ~~a. A minimum water level at or above elevation 674 feet mean sea level USGS datum, and~~ A02

SR 3.7.9.2 ~~b. An average ERCW supply header water temperature of less than or equal to 87°F.~~

Applicability APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION: ~~INSERT 3~~ keep

ACTION A ~~With the requirements of the above specification not satisfied, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.~~ A02

In accordance with the Surveillance Frequency Control Program LA01

SURVEILLANCE REQUIREMENTS

SR 3.7.9.1, SR 3.7.9.2 4.7.5.1 The ultimate heat sink shall be determined OPERABLE ~~at least once per 24 hours~~ by verifying ~~the average ERCW supply header temperature and water level to be within their limits.~~ A02

~~INSERT 4~~

keep

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ITS

ITS 3.7.9

~~A02~~ ~~**INSERT 3**~~

MEH-005

~~ACTION A~~ ~~a. With the average ERCW supply header water temperature > 79°F and ≤ 87°F, and any ERCW loop aligned to support one pump per loop OPERABILITY, and only one ERCW pump is OPERABLE on that loop, immediately declare the associated ERCW loop inoperable and comply with the ACTION requirements of Specification 3.7.4.~~

~~ACTION B~~ ~~b. With the average ERCW supply header water temperature ≥ 83°F and ≤ 87°F, and one ERCW supply strainer inoperable on one or more loops, immediately declare the associated ERCW loop inoperable and comply with the ACTION requirements of Specification 3.7.4.~~

~~ACTION C~~ ~~c. With the UHS not within limits for reasons other than ACTION a or ACTION b, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

~~A02~~ ~~**INSERT 4**~~

~~SR 3.7.9.1~~ ~~a. the UHS water level is ≥ 674 feet mean sea level USGS datum, and~~

~~SR 3.7.9.2~~ ~~b. the average ERCW supply header water temperature is:~~

~~1) ≤ 79°F with any ERCW loop aligned to support one pump per loop OPERABILITY and only one ERCW pump OPERABLE on that loop, or~~

~~2) < 83°F with one ERCW supply strainer and two ERCW pumps OPERABLE on that loop, or~~

~~3) ≤ 87°F with two ERCW supply strainers and two ERCW pumps OPERABLE per loop.~~

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DISCUSSION OF CHANGES
ITS 3.7.9, ULTIMATE HEAT SINK (UHS)

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 ~~This change is provided consistent with Technical Specification amendment request TS-SQN-13-01 and 13-02, "Sequoyah Nuclear Plant (SQN), Units 1 and 2 – Proposed Technical Specification (TS) Change, "Ultimate Heat Sink (UHS) Temperature Limitations Supporting Alternate Essential Raw Water Cooling Water (ERCW) Loop Alignments (TS-SQN-13-01 and 13-02)," submitted to the USNRC for approval in a letter from J. W. Shea (TVA) to USNRC, dated October 2, 2013 (ADAMS Accession No. ML13280A267). As such, these changes are administrative.~~

MEH-005

SQN Unit 1 CTS LCO 3.7.5.b and 3.7.5.c provide a one-time special restriction when the ERCW System is in the alignment to support large heavy load lifts associated with the Unit 2 refueling outage 18 steam generator replacement project. ITS LCO 3.7.9 does not provide this special restriction. This changes the CTS by deleting a one-time special restriction needed to replace the Unit 2 steam generators.

The purpose of the SQN Unit 1 CTS LCO 3.7.5.b and 3.7.5.c heavy load lift special restriction was to provide a one-time operability restriction to allow a heavy load lift needed to replace the Unit 2 steam generators during the Unit 2 refueling outage 18. This special restriction has been used and refueling outage 18 has passed making this special restriction no longer usable. This change is designated as an administrative change and is acceptable because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

NONE

RELOCATED SPECIFICATIONS

NONE

REMOVED DETAIL CHANGES

LA01 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.7.5.1 requires verification at least once per 24 hours that the average Essential Raw Cooling Water (ERCW) supply header temperature and UHS water level are within their limits. ITS SR 3.7.9.1 and SR 3.7.9.2 require similar Surveillances but specify the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for the SRs to the Surveillance Frequency Control Program.

The removal of these details related to Surveillance Requirement Frequencies 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 existing Surveillance Frequencies are removed from Technical Specifications and placed under licensee control pursuant to the methodology described in NEI 04-10. A new program (Surveillance Frequency Control Program) is being added to the

DISCUSSION OF CHANGES
ITS 3.7.9, ULTIMATE HEAT SINK (UHS)

Administrative Controls section of the Technical Specifications describing the control of Surveillance Frequencies. The surveillance test requirements remain in the Technical Specifications. The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. This change is designated as a less restrictive removal of detail change, because the Surveillance Frequencies are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

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

CTS

UHS
3.7.9

MEH-005

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

3.7.5

LCO 3.7.9 The UHS shall be OPERABLE.

Applicability

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
~~ACTION a~~	~~INSERT 1~~ ~~A.~~ ~~[One or more cooling towers with one cooling tower fan inoperable.~~	A.1 ~~INSERT 2~~ ~~Restore cooling tower fan(s) to OPERABLE status.~~	~~Immediately~~ ~~7 days]~~	1 ~~2~~
~~ACTION b~~	~~-----REVIEWER'S NOTE----- The [ ]°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit.~~ ~~---------------------------------~~ ~~INSERT 3~~ ~~B.~~ ~~[Water temperature of the UHS > [90]°F and ≤ [ ]°F.~~	B.1 ~~INSERT 2~~ ~~Verify water temperature of the UHS is ≤ [90]°F averaged over the previous 24 hour period.~~	~~Immediately~~ ~~Once per hour]~~	~~2~~ 3 ~~2~~
ACTION ~~c~~	A. ~~C.~~ ~~[Required Action and associated Completion Time of Condition A or B not met.~~ ~~OR]~~ UHS inoperable ~~[for reasons other than Condition A or B]~~. keep	~~C~~.1 Be in MODE 3. AND A ~~C~~.2 Be in MODE 5.	6 hours 36 hours	1 4

~~2~~ **~~INSERT 1~~**

MEH-005

~~ERCW average supply temperature > 81°F and ≤ 87°F and any ERCW train aligned to support one ERCW pump per train operation.~~

~~2~~ **~~INSERT 2~~**

~~Declare associated ERCW train inoperable and enter applicable Conditions and Required Actions of LCO 3.7.8, "ERCW System."~~

~~2~~ **~~INSERT 3~~**

~~ERCW average supply temperature ≥ 83°F and ≤ 87°F and one ERCW supply strainer inoperable on one or more trains.~~

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CTS

UHS
3.7.9

MEH-005

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
4.7.5.1~~,~~ ~~4.7.5.1.a~~	SR 3.7.9.1 ~~[~~ Verify water level of UHS is ≥ ~~[562]~~ 674 ft ~~[~~mean sea level~~]~~ USGS datum.	~~[[24] hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]]~~	4 5 5
4.7.5.1~~,~~ ~~4.7.5.1.b~~	SR 3.7.9.2 ~~[~~ Verify average water temperature ERCW supply header ~~of UHS~~ is ≤ ~~[90]~~ 87°F. ~~INSERT 4~~ keep keep	~~[24 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]]~~ 6	4 5 5
	~~SR 3.7.9.3 [Operate each cooling tower fan for ≥ [15] minutes.~~	~~[31 days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	1

2

~~INSERT 4~~

MEH-005

~~a) ≤ 81°F with any ERCW train aligned to support one pump per train operation,~~

~~b) < 83°F with one ERCW supply strainer and two ERCW pumps OPERABLE on that train, and~~

~~c) ≤ 87°F with two ERCW supply strainers and two ERCW pumps OPERABLE per train.~~

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.7.9.4~~	~~[Verify each cooling tower fan starts automatically on an actual or simulated actuation signal.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~

1

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CTS

UHS
3.7.9

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

3.7.5 LCO 3.7.9 The UHS shall be OPERABLE.

Applicability APPLICABILITY: MODES 1, 2, 3, and 4.

MEH-005

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
~~ACTION a~~	INSERT 1 ~~A. [One or more cooling towers with one cooling tower fan inoperable.~~	A.1 INSERT 2 ~~Restore cooling tower fan(s) to OPERABLE status.~~	Immediately ~~7 days]~~
~~ACTION b~~	~~-----REVIEWER'S NOTE----- The [ ]°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit. -----------------------------------~~ INSERT 3 ~~B. [Water temperature of the UHS > [90]°F and ≤ [ ]°F.~~	B.1 INSERT 2 ~~Verify water temperature of the UHS is ≤ [90]°F averaged over the previous 24 hour period.~~	Immediately ~~Once per hour]~~
ACTION ~~c~~	A. ~~C.~~ ~~[Required Action and associated Completion Time of Condition A or B not met.~~ ~~OR]~~ UHS inoperable ~~[for reasons other than Condition A or B]~~ . keep	A ~~C~~.1 Be in MODE 3. AND ~~C~~.2 Be in MODE 5.	6 hours 36 hours

1 2 ~~2~~ 3 ~~2~~ 1 4

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2 ~~**INSERT 1**~~

~~ERCW average supply temperature > 79°F and ≤ 87°F and any ERCW train aligned to support one ERCW pump per train operation.~~

MEH-005

2 ~~**INSERT 2**~~

~~Declare associated ERCW train inoperable and enter applicable Conditions and Required Actions of LCO 3.7.8, "ERCW System."~~

2 ~~**INSERT 3**~~

~~ERCW average supply temperature ≥ 83°F and ≤ 87°F and one ERCW supply strainer inoperable on one or more trains.~~

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CTS

UHS
3.7.9

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SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
4.7.5.1~~,~~ ~~4.7.5.1.a~~ SR 3.7.9.1	~~[~~ Verify water level of UHS is ≥ ~~[562]~~ 674 ft ~~[~~mean sea level USGS datum~~]~~.	~~[[24] hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]]~~	4 5 5
4.7.5.1~~,~~ ~~4.7.5.1.b~~ SR 3.7.9.2	~~[~~ Verify average ERCW supply header water temperature ~~of UHS~~ is ≤ ~~[90]~~ 87 °F. INSERT 4 keep keep	~~[24 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]]~~	6 4 5 5
~~SR 3.7.9.3~~	~~[Operate each cooling tower fan for ≥ [15] minutes.~~	~~[31 days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	1

2

~~**INSERT 4**~~

MEH-005

a) ~~≤ 79°F with any ERCW train aligned to support one pump per train operation,~~

b) ~~< 83°F with one ERCW supply strainer and two ERCW pumps OPERABLE on that train, and~~

c) ~~≤ 87°F with two ERCW supply strainers and two ERCW pumps OPERABLE per train.~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.7.9.4~~	~~[Verify each cooling tower fan starts automatically on an actual or simulated actuation signal.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~

1

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.9, ULTIMATE HEAT SINK (UHS)

MEH-005

1. The Sequoyah Nuclear Plant (SQN) cooling towers are not part of the UHS. Therefore, ISTS 3.7.9 ACTION A ~~has been modified and~~ , SR 3.7.9.3 and SR 3.7.9.4 have not been included in the SQN ITS , and subsequent ACTIONS have been renumbered.

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. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed in to what is needed to meet this requirement. This is not meant to be retained in the final version of the plant specific submittal. In addition, the SQN UHS analysis does not provide for averaging the UHS (intake temperature) over a 24 hour period. The analysis assumes the initial intake temperature is less than or equal to 87°F. Therefore, the ACTION to verify UHS temperature averaged over 24 hours (ISTS 3.7.9 ACTION B) is not included in the SQN ITS.

4. 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.

5. ISTS SR 3.7.9.1 and SR 3.7.9.2 (ITS SR 3.7.9.1 and SR 3.7.9.2) provide two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

6. ISTS SR 3.7.9.2 has been changed to "Verify average ERCW supply header water temperature is ≤ 87ºF" to be consistent with the current licensing basis as required in CTS 4.7.5.1.

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

B 3.7 PLANT SYSTEMS

B 3.7.9 Ultimate Heat Sink (UHS)

BASES

BACKGROUND

The UHS provides a heat sink for processing and operating heat from safety related components during a transient or accident, as well as during normal operation. This is done by utilizing the ~~Service Water System (SWS)~~ Essential Raw Cooling Water (ERCW) system and the Component Cooling Water ~~(CCW)~~ System (CCS). 1

The UHS has been defined as that complex of water sources, including necessary retaining structures ~~(e.g., a pond with its dam, or a river with its dam)~~, and the canals or conduits connecting the sources with, but not including, the cooling water system intake structures as discussed in the U FSAR, Section ~~[~~9.2.5~~]~~ (Ref. 1). ~~If cooling towers or portions thereof are required to accomplish the UHS safety functions, they should meet the same requirements as the sink.~~ The two principal functions of the UHS are the dissipation of residual heat after reactor shutdown, and dissipation of residual heat after an accident. 1 2 1

INSERT 1 ~~A variety of complexes~~ is used to meet the requirements for a UHS. ~~A lake or an ocean may qualify as a single source. If the complex includes a water source contained by a structure, it is likely that a second source will be required.~~ 1

The basic performance requirements are that a 30 day supply of water be available, and that the design basis temperatures of safety related equipment not be exceeded. ~~Basins of cooling towers generally include less than a 30 day supply of water, typically 7 days or less. A 30 day supply would be dependent on other source(s) and makeup system(s) for replenishing the source in the cooling tower basin. For smaller basin sources, which may be as small as a 1 day supply, the systems for replenishing the basin and the backup source(s) become of sufficient importance that the makeup system itself may be required to meet the same design criteria as an Engineered Safety Feature (e.g., single failure considerations), and multiple makeup water sources may be required~~. 1

Additional information on the design and operation of the system, along with a list of components served, can be found in Reference 1.

APPLICABLE SAFETY ANALYSES

The UHS is the sink for heat removed from the reactor core following all accidents and anticipated operational occurrences in which the unit is cooled down and placed on residual heat removal (RHR) operation. ~~For units that use UHS as the normal heat sink for condenser cooling via the Circulating Water System, unit operation at full power is its maximum heat load.~~ Its maximum post accident heat load occurs ~~20~~ approximately 25 minutes after a 1

1 **INSERT 1**

Chickamauga Lake (Tennessee River system)

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BASES

APPLICABLE SAFETY ANALYSES

design basis loss of coolant accident (LOCA). Near this time, the unit switches from injection to recirculation and the containment cooling systems and RHR are required to remove the core decay heat.

The operating limits are based on conservative heat transfer analyses for the worst case LOCA. Reference 1 provides the details of the assumptions used in the analysis, which include worst expected meteorological conditions, conservative uncertainties when calculating decay heat, and worst case single active failure (e.g., single failure of a manmade structure). The UHS is designed in accordance with Regulatory Guide 1.27 (Ref. 2), which requires a 30 day supply of cooling water in the UHS. MEH-005

The UHS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The UHS is required to be OPERABLE and is considered OPERABLE if it contains a sufficient volume of water at or below the maximum temperature that would allow the ERCW system ~~SWS~~ to operate for at least 30 days following the design basis LOCA without the loss of net positive suction head (NPSH), and without exceeding the maximum design temperature of the equipment served by the ERCW system ~~SWS~~. To meet this condition, the average ERCW supply header water ~~UHS~~ temperature should not exceed 87 ~~[90~~°F~~]~~ and the level of the UHS should not fall below 674 ~~[562~~ ft mean sea level USGS datum~~]~~ during normal unit operation. ~~INSERT 2~~ 1 3 1 2

APPLICABILITY

In MODES 1, 2, 3, and 4, the UHS is required to support the OPERABILITY of the equipment serviced by the UHS and required to be OPERABLE in these MODES.

In MODE 5 or 6, the OPERABILITY requirements of the UHS are determined by the systems it supports.

ACTIONS

~~[A.1~~

~~INSERT 3~~ ~~If one or more cooling towers have one fan inoperable (i.e., up to one fan per cooling tower inoperable), action must be taken to restore the inoperable cooling tower fan(s) to OPERABLE status within 7 days.~~

~~The 7 day Completion Time is reasonable based on the low probability of an accident occurring during the 7 days that one cooling tower fan is inoperable (in one or more cooling towers), the number of available systems, and the time required to reasonably complete the Required Action.]~~ 3 ~~1~~

~~1~~ ~~**INSERT 2**~~

~~When the ERCW System is in the alignment to support one ERCW pump per train operation, the UHS temperature shall be ≤ 81°F. When the ERCW System is in the alignment to support one ERCW supply strainer per train operation, the UHS temperature shall be < 83°F. The alignment to support one ERCW pump per train operation is described in Table B 3.7.9-1. The alignment to support one ERCW supply strainer per train operation is described in Table B 3.7.9-2.~~

MEH-005

~~1~~ ~~**INSERT 3**~~

~~With the average ERCW supply header water temperature > 81°F and ≤ 87°F and the associated ERCW train is aligned to support one pump per train operation, the ERCW heat removal capability for that train is less than that assumed in the accident analysis and the associated ERCW train must be immediately declared inoperable.~~

~~In this Condition, the remaining OPERABLE ERCW train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure could result in a loss of the UHS function. Therefore, to ensure action is taken to restore the inoperable ERCW train to an OPERABLE status, the affected ERCW train is immediately declared inoperable and the applicable Conditions and Required Actions of LCO 3.7.8, "ERCW System," are entered.~~

BASES

ACTIONS (continued)

[~~B.1~~

~~-----REVIEWER'S NOTE-----~~
~~The [ ]°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit.~~
~~-----~~ 4

~~INSERT 4~~

~~With water temperature of the UHS > [90]°F, the design basis assumption associated with initial UHS temperature are bounded provided the temperature of the UHS averaged over the previous 24 hour period is ≤ [90]°F. With the water temperature of the UHS > [90]°F, long term cooling capability of the ECCS loads and DGs may be affected. Therefore, to ensure long term cooling capability is provided to the ECCS loads when water temperature of the UHS is > [90]°F, Required Action B.1 is provided to more frequently monitor the water temperature of the UHS and verify the temperature is ≤ [90]°F when averaged over the previous 24 hour period. The once per hour Completion Time takes into consideration UHS temperature variations and the increased monitoring frequency needed to ensure design basis assumptions and equipment limitations are not exceeded in this condition. If the water temperature of the UHS exceeds [90]°F when averaged over the previous 24 hour period or the water temperature of the UHS exceeds [ ]°F, Condition C must be entered immediately.]~~ MEH-005 3 ~~1~~

[~~C~~A.1 and ~~C~~A.2 3 ~~2~~

If ~~the Required Actions and Completion Times of Condition [A or B] are not met, or~~ the UHS is inoperable ~~for reasons other than Condition A [or B]~~, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours. 3

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.] 2

SURVEILLANCE REQUIREMENTS

[SR 3.7.9.1 2

This SR verifies that adequate long term (30 day) cooling can be maintained. The specified level also ensures that sufficient NPSH is available to operate the ~~SWS~~ ERCW pumps. ~~[The [24] hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.~~ This SR verifies that the UHS water level is ≥ ~~[562]~~ 674 ft ~~[mean sea level]~~ USGS datum. 5 2

1 ~~**INSERT 4**~~

MEH-005

~~With the average ERCW supply header water temperature ≥ 83°F and ≤ 87°F and the associated ERCW train(s) is aligned to support one inoperable ERCW supply strainer per train, the ERCW heat removal capability for each affected train is less than that assumed in the accident analysis and the associated ERCW train must be immediately declared inoperable.~~

~~In this Condition, any remaining OPERABLE ERCW train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure could result in a loss of the UHS function. Therefore, to ensure action is taken to restore the inoperable ERCW train(s) to an OPERABLE status, the associated ERCW train(s) is immediately declared inoperable and the applicable Conditions and Required Actions of LCO 3.7.8, "ERCW System," are entered.~~

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BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~ 5

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.~~ 4
~~-----]]~~ 5

~~[~~ SR 3.7.9.2 2

This SR verifies that the ERCW System ~~SWS~~ is available to cool the CCS ~~CCW System~~ to at least its maximum design temperature with the maximum accident or normal design heat loads for 30 days following a Design Basis Accident. ~~[The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.~~ This SR verifies that the average ERCW supply header water temperature ~~of the UHS~~ is ≤ ~~[90~~ 87°F~~]~~. ~~INSERT 5~~ 1 5 2 ~~1~~ 3 5 ~~1~~

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. MEH-005

~~-----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.~~ 4
~~-----]]~~ 5

~~[SR 3.7.9.3~~

~~Operating each cooling tower fan for ≥[15] minutes ensures that all fans are OPERABLE and that all associated controls are functioning properly. It also ensures that fan or motor failure, or excessive vibration, can be detected for corrective action. [The 31 day Frequency is based on operating experience, the known reliability of the fan units, the redundancy available, and the low probability of significant degradation of the UHS cooling tower fans occurring between surveillances.~~ 3

1

~~INSERT 5~~

MEH-005

~~when the ERCW System is aligned in its normal configuration. In addition, this SR provides temperature limitations for alternate ERCW train alignments.~~

~~When an ERCW train is aligned in accordance with Table B 3.7.9-1 for one OPERABLE ERCW pump per train operation, this SR verifies that the average water temperature of the UHS is ≤ 81°F. When one or more ERCW train(s) is aligned in accordance with Table B 3.7.9-2 for one OPERABLE ERCW supply strainer per train operation, this SR verifies that the average water temperature of the UHS is < 83°F. These actions verify that the ERCW is available to cool the CCS to at least its maximum design temperature with the maximum accident or normal design heat loads for 30 days following a Design Basis Accident when aligned in either the Table B 3.7.9-1 or Table B 3.7.9-2 alternate configuration.~~

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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.~~
~~--]]~~

3

~~[SR 3.7.9.4~~

~~This SR verifies that each cooling tower fan starts and operates on an actual or simulated actuation signal. [The [18] month Frequency is consistent with the typical refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~

~~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

REFERENCES

1. U FSAR, Section ~~[~~9.2.5~~]~~. 1 2

2. Regulatory Guide 1.27.

~~INSERT 6~~ ~~1~~

MEH-005

~~1~~ **~~INSERT 6~~**

~~Table B 3.7.9-1 (page 1 of 2)~~
~~ERCW Requirements For One Pump per Train Operation~~

MEH-005

~~Train A One Pump Operation~~

1. ~~ERCW System supply header average water temperature is ≤ 81°F.~~
2. ~~Unit 2 is in MODE 5 or 6, or defueled.~~
3. ~~The ERCW System is aligned as follows:~~
   a. ~~ERCW flow is isolated to the following components:~~
      1) ~~2A-A Diesel Generator Heat Exchangers;~~
      2) ~~Unit 2 Containment Spray Heat Exchanger 2A;~~
      3) ~~Unit 2 TDAFW Pump from the "2A" ERCW Main Supply Header;~~
      4) ~~Lower Containment Vent Cooler 2A, Control Rod Drive Vent Cooler 2A, and Reactor Coolant Pump 2-1 Motor Cooler;~~
      5) ~~Lower Containment Vent Cooler 2C, Control Rod Drive Vent Cooler 2C, and Reactor Coolant Pump 2-3 Motor Cooler;~~
      6) ~~Upper Containment Vent Cooler 2A;~~
      7) ~~Upper Containment Vent Cooler 2C; and~~
      8) ~~Incore Instrumentation Room Water Coolers 2A.~~
   b. ~~The following are in service:~~
      1) ~~Train A ERCW yard header crosstie;~~
      2) ~~Train A ERCW 16-inch Auxiliary Building header crosstie; and~~
      3) ~~Train A ERCW 6-inch Engineered Safety Features (ESF) header crosstie.~~

1

~~**INSERT 6 (Continued)**~~

~~Table B 3.7.9-1 (page 2 of 2)~~
~~ERCW Requirements For One Pump per Train Operation~~

MEH-005

~~Train B One Pump Operation~~

~~1. ERCW System supply header average water temperature is ≤ 81°F.~~

~~2. Unit 2 is in MODE 5, MODE 6, or defueled.~~

~~3. The ERCW System is aligned as follows:~~

~~a. ERCW flow is isolated to the following components:~~

~~1) 2B-B Diesel Generator Heat Exchangers;~~

~~2) Containment Spray Heat Exchanger 2B;~~

~~3) Unit 2 TDAFW Pump from the "2B" ERCW Main Supply Header;~~

~~4) Lower Containment Ventilation Cooler 2B, Control Rod Drive Vent Cooler 2B, and Reactor Coolant Pump 2-2 Motor Cooler;~~

~~5) Lower Containment Ventilation Coolers 2D, Control Rod Drive Vent Cooler 2D, and Reactor Coolant Pump 2-4 Motor Cooler ;~~

~~6) Upper Containment Ventilation Coolers 2B;~~

~~7) Upper Containment Ventilation Coolers 2D; and~~

~~8) Incore Instrumentation Room Water Coolers 2B.~~

~~b. The following are in service:~~

~~1) Train B ERCW yard header crosstie~~

~~2) Train B ERCW 16-inch Auxiliary Building header crosstie~~

~~3) Train B ERCW 6-inch Engineered Safety Features (ESF) header crossties.~~

~~c. ERCW flow to the 1B Control Rod Drive Vent Cooler is isolated.~~

---

1 ~~**INSERT 6 (Continued)**~~

~~Table B 3.7.9-2 (page 1 of 1)~~
~~ERCW Requirements For One Supply Strainer per Train Operation~~ MEH-005

~~FEATURE~~	~~Condition~~
~~Average ERCW System supply header water temperature~~	~~≤ 83°F~~
~~ERCW Yard header crosstie (associated loop)~~	~~In service~~
~~ERCW 16-Inch Auxiliary Building header crossties~~	~~In service or isolated~~
~~ERCW 6-Inch ESF header crossties~~	~~In service or isolated~~

B 3.7 PLANT SYSTEMS

B 3.7.9 Ultimate Heat Sink (UHS)

BASES

BACKGROUND

The UHS provides a heat sink for processing and operating heat from safety related components during a transient or accident, as well as during normal operation. This is done by utilizing the ~~Service Water System (SWS)~~ Essential Raw Cooling Water (ERCW) system and the Component Cooling Water ~~(CCW)~~ System (CCS). 1

The UHS has been defined as that complex of water sources, including necessary retaining structures ~~(e.g., a pond with its dam, or a river with its dam)~~, and the canals or conduits connecting the sources with, but not including, the cooling water system intake structures as discussed in the U FSAR, Section ~~[~~9.2.5~~]~~ (Ref. 1). ~~If cooling towers or portions thereof are required to accomplish the UHS safety functions, they should meet the same requirements as the sink.~~ The two principal functions of the UHS are the dissipation of residual heat after reactor shutdown, and dissipation of residual heat after an accident. 1 2 1

~~A variety of complexes~~ INSERT 1 is used to meet the requirements for a UHS. ~~A lake or an ocean may qualify as a single source. If the complex includes a water source contained by a structure, it is likely that a second source will be required.~~ 1

The basic performance requirements are that a 30 day supply of water be available, and that the design basis temperatures of safety related equipment not be exceeded. ~~Basins of cooling towers generally include less than a 30 day supply of water, typically 7 days or less. A 30 day supply would be dependent on other source(s) and makeup system(s) for replenishing the source in the cooling tower basin. For smaller basin sources, which may be as small as a 1 day supply, the systems for replenishing the basin and the backup source(s) become of sufficient importance that the makeup system itself may be required to meet the same design criteria as an Engineered Safety Feature (e.g., single failure considerations), and multiple makeup water sources may be required~~. 1

Additional information on the design and operation of the system, along with a list of components served, can be found in Reference 1.

APPLICABLE SAFETY ANALYSES

The UHS is the sink for heat removed from the reactor core following all accidents and anticipated operational occurrences in which the unit is cooled down and placed on residual heat removal (RHR) operation. ~~For units that use UHS as the normal heat sink for condenser cooling via the Circulating Water System, unit operation at full power is its maximum heat load.~~ Its maximum post accident heat load occurs ~~20~~ approximately 25 minutes after a 1

1 **INSERT 1**

Chickamauga Lake (Tennessee River system)

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BASES

APPLICABLE SAFETY ANALYSES

design basis loss of coolant accident (LOCA). Near this time, the unit switches from injection to recirculation and the containment cooling systems and RHR are required to remove the core decay heat.

The operating limits are based on conservative heat transfer analyses for the worst case LOCA. Reference 1 provides the details of the assumptions used in the analysis, which include worst expected meteorological conditions, conservative uncertainties when calculating decay heat, and worst case single active failure (e.g., single failure of a manmade structure). The UHS is designed in accordance with Regulatory Guide 1.27 (Ref. 2), which requires a 30 day supply of cooling water in the UHS.

The UHS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

MEH-005

1

The UHS is required to be OPERABLE and is considered OPERABLE if it contains a sufficient volume of water at or below the maximum temperature that would allow the ERCW system ~~SWS~~ to operate for at least 30 days following the design basis LOCA without the loss of net positive suction head (NPSH), and without exceeding the maximum design temperature of the equipment served by the ERCW system ~~SWS~~. To meet this condition, the ~~UHS~~ average ERCW supply header water temperature should not exceed ~~[90~~ 87°F~~]~~ and the level of the UHS should not fall below ~~[562~~ 674 ft mean sea level~~]~~ USGS datum during normal unit operation. ~~INSERT 2~~

3 1

2

APPLICABILITY

In MODES 1, 2, 3, and 4, the UHS is required to support the OPERABILITY of the equipment serviced by the UHS and required to be OPERABLE in these MODES.

In MODE 5 or 6, the OPERABILITY requirements of the UHS are determined by the systems it supports.

ACTIONS

~~[A.1~~

~~INSERT 3~~

~~If one or more cooling towers have one fan inoperable (i.e., up to one fan per cooling tower inoperable), action must be taken to restore the inoperable cooling tower fan(s) to OPERABLE status within 7 days.~~

~~The 7 day Completion Time is reasonable based on the low probability of an accident occurring during the 7 days that one cooling tower fan is inoperable (in one or more cooling towers), the number of available systems, and the time required to reasonably complete the Required Action.]~~

3

~~1~~

MEH-005

1 **~~INSERT 2~~**

~~When the ERCW System is in the alignment to support one ERCW pump per train operation, the UHS temperature shall be ≤ 79°F. When the ERCW System is in the alignment to support one ERCW supply strainer per train operation, the UHS temperature shall be < 83°F. The alignment to support one ERCW pump per train operation is described in Table B 3.7.9-1. The alignment to support one ERCW supply strainer per train operation is described in Table B 3.7.9-2.~~

1 **~~INSERT 3~~**

~~With the average ERCW supply header water temperature > 79°F and ≤ 87°F and the associated ERCW train is aligned to support one pump per train operation, the ERCW heat removal capability for that train is less than that assumed in the accident analysis and the associated ERCW train must be immediately declared inoperable.~~

~~In this Condition, the remaining OPERABLE ERCW train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure could result in a loss of the UHS function. Therefore, to ensure action is taken to restore the inoperable ERCW train to an OPERABLE status, the affected ERCW train is immediately declared inoperable and the applicable Conditions and Required Actions of LCO 3.7.8, "ERCW System," are entered.~~

BASES

ACTIONS (continued)

[~~B.1~~

~~------------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The [ ]°F is the maximum allowed UHS temperature value and is based on temperature limitations of the equipment that is relied upon for accident mitigation and safe shutdown of the unit.~~
~~--~~ 4

~~INSERT 4~~

~~With water temperature of the UHS > [90]°F, the design basis assumption associated with initial UHS temperature are bounded provided the temperature of the UHS averaged over the previous 24 hour period is ≤ [90]°F. With the water temperature of the UHS > [90]°F, long term cooling capability of the ECCS loads and DGs may be affected. Therefore, to ensure long term cooling capability is provided to the ECCS loads when water temperature of the UHS is > [90]°F, Required Action B.1 is provided to more frequently monitor the water temperature of the UHS and verify the temperature is ≤ [90]°F when averaged over the previous 24 hour period. The once per hour Completion Time takes into consideration UHS temperature variations and the increased monitoring frequency needed to ensure design basis assumptions and equipment limitations are not exceeded in this condition. If the water temperature of the UHS exceeds [90]°F when averaged over the previous 24 hour period or the water temperature of the UHS exceeds [ ]°F, Condition C must be entered immediately.]~~ 3 ~~1~~ MEH-005

A

[~~C~~.1 and ~~C~~.2 3 ~~2~~

If ~~the Required Actions and Completion Times of Condition [A or B] are not met, or~~ the UHS is inoperable ~~for reasons other than Condition A [or B]~~, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours. 3

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.] 2

SURVEILLANCE REQUIREMENTS

[SR 3.7.9.1 2

This SR verifies that adequate long term (30 day) cooling can be maintained. The specified level also ensures that sufficient NPSH is available to operate the ~~SWS~~ ERCW pumps. ~~[The [24] hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.~~ This SR verifies that the UHS water level is ≥ ~~[562]~~ 674 ft ~~[mean sea level]~~ USGS datum. 5 2

1 ~~**INSERT 4**~~

MEH-005

~~With the average ERCW supply header water temperature ≥ 83°F and ≤ 87°F and the associated ERCW train(s) is aligned to support one inoperable ERCW supply strainer per train, the ERCW heat removal capability for each affected train is less than that assumed in the accident analysis and the associated ERCW train must be immediately declared inoperable.~~

~~In this Condition, any remaining OPERABLE ERCW train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure could result in a loss of the UHS function. Therefore, to ensure action is taken to restore the inoperable ERCW train(s) to an OPERABLE status, the associated ERCW train(s) is immediately declared inoperable and the applicable Conditions and Required Actions of LCO 3.7.8, "ERCW System," are entered.~~

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BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~ 5

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.~~
~~-----]]~~ 4 5

~~[~~SR 3.7.9.2 2

ERCW System CCS

This SR verifies that the ~~SWS~~ is available to cool the ~~CCW System~~ to at least its maximum design temperature with the maximum accident or normal design heat loads for 30 days following a Design Basis Accident. ~~[The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.~~ This SR verifies that the average water temperature ~~of the UHS~~ is ≤ ~~[90~~°F~~].~~ 1 MEH-005 5 2 ~~1~~ 3

87 ~~INSERT 5~~ ERCW supply header 5 ~~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.~~
~~-----]]~~ 4 5

~~[SR 3.7.9.3~~

~~Operating each cooling tower fan for ≥[15] minutes ensures that all fans are OPERABLE and that all associated controls are functioning properly. It also ensures that fan or motor failure, or excessive vibration, can be detected for corrective action. [The 31 day Frequency is based on operating experience, the known reliability of the fan units, the redundancy available, and the low probability of significant degradation of the UHS cooling tower fans occurring between surveillances.~~ 3

1 ~~**INSERT 5**~~

~~when the ERCW System is aligned in its normal configuration. In addition, this SR provides temperature limitations for alternate ERCW train alignments.~~ MEH-005

~~When an ERCW train is aligned in accordance with Table B 3.7.9-1 for one OPERABLE ERCW pump per train operation, this SR verifies that the average water temperature of the UHS is ≤ 79°F. When one or more ERCW train(s) is aligned in accordance with Table B 3.7.9-2 for one OPERABLE ERCW supply strainer per train operation, this SR verifies that the average water temperature of the UHS is ≤ 83°F. These actions verify that the ERCW is available to cool the CCS to at least its maximum design temperature with the maximum accident or normal design heat loads for 30 days following a Design Basis Accident when aligned in either the Table B 3.7.9-1 or Table B 3.7.9-2 alternate configuration.~~

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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.~~
~~--]]~~

3

~~[SR 3.7.9.4~~

~~This SR verifies that each cooling tower fan starts and operates on an actual or simulated actuation signal. [The [18] month Frequency is consistent with the typical refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~

~~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

REFERENCES

1. U FSAR, Section ~~[~~9.2.5~~]~~. 1 2

2. Regulatory Guide 1.27.

~~INSERT 6~~ ~~1~~

MEH-005

1

~~**INSERT 6**~~

MEH-005

~~Table B 3.7.9-1 (page 1 of 2)~~
~~ERCW Requirements For One Pump per Train Operation~~

~~Train A One Pump Operation~~

1. ~~ERCW System supply header average water temperature is ≤ 79°F.~~

2. ~~Unit 1 is in MODE 5 or 6, or defueled.~~

3. ~~The ERCW System is aligned as follows:~~

   a. ~~ERCW flow is isolated to the following components:~~

      1) ~~1A-A Diesel Generator Heat Exchangers;~~

      2) ~~Containment Spray Heat Exchanger 1A;~~

      3) ~~Unit 1 TDAFW Pump from the "1A" ERCW Main Supply Header;~~

      4) ~~Lower Containment Vent Cooler 1A, Control Rod Drive Vent Cooler 1A, and Unit 1 Reactor Coolant Pump 1-1 Motor Cooler;~~

      5) ~~Lower Containment Vent Cooler 1C, Control Rod Drive Vent Cooler 1C, and Unit 1 Reactor Coolant Pump 1-3 Motor Cooler; and~~

      6) ~~Incore Instrumentation Room Water Coolers 1A.~~

   b. ~~The following are in service:~~

      1) ~~Train A ERCW yard header crosstie;~~

      2) ~~Train A ERCW 16-inch Auxiliary Building header crosstie; and~~

      3) ~~Train A ERCW 6-inch Engineered Safety Features (ESF) header crosstie.~~

1

~~**INSERT 6 (Continued)**~~

MEH-005

~~Table B 3.7.9-1 (page 2 of 2)~~
~~ERCW Requirements For One Pump per Train Operation~~

~~Train B One Pump Operation~~

1. ~~ERCW System supply header average water temperature is ≤ 79°F.~~
2. ~~Unit 1 is in MODE 5, MODE 6, or defueled.~~
3. ~~The ERCW System is aligned as follows:~~
   a. ~~ERCW flow is isolated to the following components:~~
      1) ~~1B-B Diesel Generator Heat Exchangers;~~
      2) ~~Containment Spray Heat Exchanger 1B;~~
      3) ~~Unit 1 TDAFW Pump from the "1B" ERCW Main Supply Header;~~
      4) ~~Lower Containment Ventilation Cooler 1B, Control Rod Drive Vent Cooler 1B, and Reactor Coolant Pump 1-2 Motor Cooler;~~
      5) ~~Lower Containment Ventilation Coolers 1D, Control Rod Drive Vent Cooler 1D, and Reactor Coolant Pump 1-4 Motor Cooler; and~~
      6) ~~Incore Instrumentation Room Water Coolers 1B.~~
   b. ~~The following are in service:~~
      1) ~~Train B ERCW yard header crosstie~~
      2) ~~Train B ERCW 16-inch Auxiliary Building header crosstie~~
      3) ~~Train B ERCW 6-inch Engineered Safety Features (ESF) header crossties.~~

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1 ~~**INSERT 6 (Continued)**~~

MEH-005

~~Table B 3.7.9-2 (page 1 of 1)~~
~~ERCW Requirements For One Supply Strainer per Train Operation~~

~~**FEATURE**~~	~~**Condition**~~
~~Average ERCW System supply header water temperature~~	~~< 83°F~~
~~ERCW Yard header crosstie (associated loop)~~	~~In service~~
~~ERCW 16-Inch Auxiliary Building header crossties~~	~~In service or isolated~~
~~ERCW 6-Inch ESF header crossties~~	~~In service or isolated~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.9 BASES, ULTIMATE HEAT SINK (UHS)

1. 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.

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 be consistent with 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.

5. ISTS SR 3.7.9.1 and SR 3.7.9.2 (ITS SR 3.7.9.1 and SR 3.7.9.2) Bases provide two options for controlling the Frequencies of Surveillance Requirements. Sequoyah Nuclear Plant (SQN) is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program. Additionally, the Frequency descriptions which are being removed will be included in the Surveillance Frequency Control Program.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.9, ULTIMATE HEAT SINK (UHS)

There are no specific Significant Hazards Considerations (NSHCs) for this Specification.

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ATTACHMENT 10

ITS 3.7.10, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)

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

A01

ITS — ITS 3.7.10

PLANT SYSTEMS

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.7.10 — 3.7.7 Two ~~independent~~ control room emergency ventilation systems (CREVS) trains shall be OPERABLE.* (LA01, A02)

Applicability — APPLICABILITY: ALL MODES and during movement of irradiated fuel assemblies

ACTION:

ACTION A, ACTION B, ACTION C, ACTION D, ACTION G — MODES 1, 2, 3 and 4

ACTION A, ACTION D — a. With one CREVS inoperable for reasons other than Action b, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION B, ACTION D — b. With one or more CREVS trains inoperable due to inoperable control room envelope (CRE) boundary, immediately initiate action to implement mitigating actions, and within 24 hours verify mitigating actions ensure CRE occupant exposures to radiological and chemical hazards will not exceed limits, CRE occupants are protected from smoke hazards, and restore CRE boundary to OPERABLE status within 90 days. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION C, ACTION D — c. With both CREVS inoperable due to actions taken as a result of a tornado warning, restore at least one train to operable status within 8 hours or be in a least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION G — d. With both CREVS inoperable for reasons other than Action b. or Action c., ~~be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours~~ Add proposed Required Action G.1 and associated Completion Time (L01)

ACTION A, ACTION E, ACTION F — MODES 5, 6, and during movement of irradiated fuel assemblies

ACTION A, ACTION E — a. With one CREVS inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the operable CREVS in the recirculation mode.
or
suspend movement of irradiated fuel assemblies.

ACTION F — b. With both CREVS inoperable or one or more CREVS trains inoperable due to an inoperable CRE bounday, suspend all operations involving movement of irradiated fuel assemblies.

SURVEILLANCE REQUIREMENTS

Add proposed SR 3.7.10.1 ~~with a Frequency of 31 days~~ In accordance with the Surveillance Frequency Control Program (M01, LA02)

SR 3.7.10.2, SR 3.7.10.4, SR 3.7.10.5 — 4.7.7 Each CREVS shall be demonstrated OPERABLE:

a. DELETED

SR 3.7.10.2 — b. At least ~~once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and~~ In accordance with the Surveillance Frequency Control Program (LA02, L03, LA03) verifying that the ~~system~~ trains operates for at least 15 minutes. (A02)

LCO 3.7.10 Note — * The CRE boundary may be opened intermittently under administrative control.

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PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

Add proposed SR 3.7.10.3 A03

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978 (except for the provisions of ANSI N510 Sections 8 and 9), and the system flow rate is 4000 cfm ± 10%.

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86° F) and a relative humidity of 70%.

3. Verifying a system flow rate of 4000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

d. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86° F) and a relative humidity of 70%.

See ITS 5.5

SR 3.7.10.4 e. ~~At least once per 18 months~~ In accordance with the Surveillance Frequency Control Program by: LA02

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 3 inches Water Gauge while operating the system at a flow rate of 4000 cfm ± 10%.

See ITS 5.5

SR 3.7.10.4 2. Verifying that on a ~~safety injection signal or a high radiation signal from the air intake stream~~ actual or simulated actuation signal, the system ~~automatically diverts its inlet flow through the HEPA filters and charcoal adsorber banks~~ actuates. L02 LA04

f. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 4000 cfm ± 10%.

g. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 4000 cfm ± 10%.

See ITS 5.5

SR 3.7.10.5 h. Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.

A01

ITS ITS 3.7.10

PLANT SYSTEMS

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

LA01

LCO 3.7.10 3.7.7 Two ~~independent~~ control room emergency ventilation systems (CREVS) shall be OPERABLE.*

trains A02

Applicability APPLICABILITY: ALL MODES and during movement of irradiated fuel assemblies

ACTION:

ACTION A, ACTION B, ACTION C, ACTION D ACTION G

MODES 1, 2, 3 and 4

ACTION A ACTION D

a. With one CREVS inoperable for reasons other than Action b, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION B ACTION D

b. With one or more CREVS trains inoperable due to inoperable control room envelope (CRE) boundary, immediately initiate action to implement mitigating actions, and within 24 hours verify mitigating actions ensure CRE occupant exposures to radiological and chemical hazards will not exceed limits, CRE occupants are protected from smoke hazards, and restore CRE boundary to OPERABLE status within 90 days. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION C ACTION D

c. With both CREVS system inoperable due to actions taken as a result of a tornado warning, restore at least one train to operable status within 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION G

d. With both CREVS inoperable for reasons other than Action b. or Action c., ~~be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

Add proposed Required Action G.1 and associated Completion Time L01

ACTION A, ACTION E, ACTION F

MODES 5, 6, and during movement of irradiated fuel assemblies

ACTION A ACTION A, ACTION E ACTION E

a. With one CREVS inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the operable CREVS in the recirculation mode

or

suspend movement of irradiated fuel assemblies.

ACTION F

b. With both CREVS inoperable or one or more CREVS trains inoperable due to an inoperable CRE bounday, suspend all operations involving movement of irradiated fuel assemblies.

In accordance with the Surveillance Frequency Control Program LA02

SURVEILLANCE REQUIREMENTS

Add proposed SR 3.7.10.1 ~~with a Frequency of 31 days~~ M01

SR 3.7.10.2, SR 3.7.10.4, SR 3.7.10.5

4.7.7 Each CREVS shall be demonstrated OPERABLE:

In accordance with the Surveillance Frequency Control Program LA02

a. DELETED

L03

SR 3.7.10.2

b. At least ~~once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and~~ verifying that the ~~system~~ operates for at least 15 minutes.

LA03 trains A02

LCO 3.7.10 Note

* The CRE boundary may be opened intermittently under administrative control.

A01

ITS ITS 3.7.10

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

Add proposed SR 3.7.10.3 A03

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978 (except for the provisions of ANSI N510 Sections 8 and 9), and the system flow rate is 4000 cfm ± 10%.

2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86° F) and a relative humidity of 70%. See ITS 5.5

3. Verifying a system flow rate of 4000 cfm + 10% during system operation when tested in accordance with ANSI N510-1975.

d. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ATSM D3803-1989 at a temperature of 30°C (86°F) and a relative humidity of 70%.

In accordance with the Surveillance Frequency Control Program LA02

SR 3.7.10.4 e. ~~At least once per 18 months~~ by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 3 inches Water Gauge while operating the system at a flow rate of 4000 cfm ± 10%. See ITS 5.5

actual or simulated actuation signal L02

SR 3.7.10.4 2. Verifying that on a ~~safety injection signal or high radiation signal from the air intake stream,~~ the system ~~automatically diverts its inlet flow through the HEPA filters and charcoal adsorber banks~~. LA04

actuates

f. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 4000 cfm ± 10%.

g. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 4000 cfm ± 10%. See ITS 5.5

SR 3.7.10.5 h. Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.

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DISCUSSION OF CHANGES
ITS 3.7.10, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 3.7.7 requires two control room emergency ventilation systems (CREVS) to be OPERABLE. CTS 3.7.7 MODES 1, 2, 3, and 4 ACTION b and during the movement of irradiated fuel assemblies ACTION b provide compensatory measures to take in the event one or more CREVS trains inoperable due to an inoperable control room envelope. CTS 4.7.7.b provides a periodic verification that each CREVS operates for at least 15 minutes. ITS LCO 3.7.10 requires two CREVS trains to be OPERABLE. ITS SR 3.7.10.2 verifies that each CREVS train operates for greater than or equal to 15 minutes. This changes the CTS by stating that CREVS contains two trains.

CTS 3.7.7 and associated ACTIONS and Surveillance Requirements inconsistently refer to CREVS “systems” and “trains.” ITS LCO 3.7.10 and SR 3.7.10.2 explicitly state that the CREVS contains two trains. This is a change in presentation only and therefore designated as administrative because it does not result in a technical change to the CTS.

A03 CTS 4.7.7.c specifies the CREVS Surveillances to be performed after any structural maintenance on the HEPA filter or charcoal adsorber housings, or following painting, fire or chemical release in any ventilation zone communicating with the system. CTS 4.7.7.d specifies the CREVS Surveillances to be performed after every 720 hours of charcoal adsorber operation. CTS 4.7.7.f requires the CREVS Surveillances to be performed after each complete or partial replacement of a HEPA filter bank. CTS 4.7.7.g requires the CREVS Surveillances to be performed after each complete or partial replacement of a charcoal adsorber. ITS SR 3.7.10.3 requires performing required CREVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP). CTS 4.7.7 does not include a VFTP, however the aforementioned CTS CREVS Surveillance Requirements will be implemented in the VFTP located in ITS 5.5. This changes the CTS by requiring testing in accordance with the VFTP.

This change is acceptable because filter testing requirements are being moved to the VFTP as part of ITS 5.5. Furthermore, ITS SR 3.7.10.3 requires the performance of the CREVS filter testing in accordance with the VFTP. This change is designated as administrative because it does not result in a technical change to the CTS.

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DISCUSSION OF CHANGES
ITS 3.7.10, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)

MORE RESTRICTIVE CHANGES

M01 ITS SR 3.7.10.1 requires verification that each tornado damper is in the correct position every 31 days unless they are locked, sealed, or otherwise secured in place. CTS 3.7.7 does not contain this Surveillance Requirement. This changes the CTS by requiring a verification that each tornado damper is in the correct position. (See DOC LA02 for moving the 31 day frequency for this Surveillance Requirement to the Surveillance Frequency Control Program.)

CREVS is designed to ensure that the control room environment will support the activities required of control room personnel during accident conditions and the subsequent recovery period. When activated, CREVS provides a mixture of outside air and recirculated air through devices that provide temperature, humidity, and air cleanup control. In this mode, the control room is maintained at a positive pressure (0.125 inches water gauge) above the outside atmospheric pressure and at a slightly positive pressure in relation to the adjacent areas. When the tornado dampers are closed, the flow path for pressuring air to CREVS is isolated. Therefore, CREVS is unable to maintain a positive pressure above the outside atmospheric pressure and at a slightly positive pressure in relation to the adjacent areas. Since the position of the tornado dampers is integral to the OPERABILITY of CREVS, ITS 3.7.10 a specific Surveillance Requirement (ITS SR 3.7.10.1) has been added to verify every 31 days that the tornado dampers are in the correct position, unless the dampers are locked, sealed or otherwise secured. This change is acceptable because the CTS Actions (CTS 3.7.7 ACTION c) to restore, within eight hours, at least one train of CREVS when the tornado dampers are not in the correct position because of a tornado warning are retained in ITS 3.7.10 ACTION C. This change has been designated as more restrictive because an additional Surveillance Requirement has been added to verify the position of the tornado dampers.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.7.7 requires two independent control room emergency ventilation systems (CREVS) to be OPERABLE. ITS LCO 3.7.10 requires two CREVS trains to be OPERABLE. This changes the CTS by moving the detail that the trains must be "independent" to the Bases.

The removal of this detail, which is related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements that two CREVS trains shall be OPERABLE. Additionally, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specifications Bases Control Program

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DISCUSSION OF CHANGES
ITS 3.7.10, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)

in Chapter 5. This program provides for the evaluation of changes to the Bases to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA02 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.7.7.b requires verification that the CREVS operates for at least 15 minutes every 31 days. (See DOC L03 for deletion of the STAGGERED TEST BASIS.) CTS 4.7.7.e.2 requires verification that the CREVS automatically diverts its inlet flow through the HEPA filters and charcoal adsorber banks at least once per 18 months. ITS SR 3.7.10.2 and SR 3.7.10.4 require similar Surveillances, but specify the periodic Frequency as, "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for this SR and associated Bases to the Surveillance Frequency Control Program. Additionally, ITS SR 3.7.10.1 has been added to verify that the tornado dampers are in the correct position every 31 days. (See DOC M01 for the discussion on adding ITS SR 3.7.10.1.) The 31 day Frequency for this Surveillance has also been moved to the Surveillance Frequency Control Program.

The removal of these details related to Surveillance Requirement Frequencies 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 existing Surveillance Frequencies are removed from Technical Specifications and placed under licensee control pursuant to the methodology described in NEI 04-10. A new program (Surveillance Frequency Control Program) is being added to the Administrative Controls section of the Technical Specifications describing the control of Surveillance Frequencies. The surveillance test requirements remain in the Technical Specifications. The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. This change is designated as a less restrictive removal of detail change, because the Surveillance Frequencies are being removed from the Technical Specifications.

LA03 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.7.7.b requires that each CREVS shall be demonstrated OPERABLE "by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and" verifying that the system operates for at least 15 minutes. ITS SR 3.7.10.2 requires operation of each CREV train for greater than or equal to 15 minutes. This changes the CTS moving the detail of the flow path from the CTS to the Bases.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS retains the requirement to periodically operate each CREVS train. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases.

DISCUSSION OF CHANGES
ITS 3.7.10, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)

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 that the Bases are properly controlled. This change is designated as a less restrictive change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA04 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.7.7.e.2 requires verification that on a safety injection signal or a high radiation signal from the air intake stream, CREVS automatically diverts its inlet flow through the HEPA filters and charcoal adsorber banks. ITS SR 3.7.10.4 requires verification that each CREVS train actuates on an actual or simulated actuation signal. This changes the CTS by moving the details that the test must be performed using a safety injection signal or a high radiation signal from the air intake stream and that the system must actuate automatically to divert its inlet flow through the HEPA filters and charcoal adsorber banks from the CTS to the Bases.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement that the CREVS trains actuate on an actual or simulated signal. 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 that the Bases are properly controlled. This change is designated as a less restrictive change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.7.7 ACTION d for MODES 1, 2, 3, and 4 requires when both CREVS are inoperable for reasons other than an inoperable control room envelope (CRE) boundary or actions taken as a result of a tornado warning, to be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. ITS 3.7.10 ACTION G requires, for the same type of inoperability, to enter LCO 3.0.3 immediately. ITS LCO 3.0.3 requires ACTION to be initiated within one hour to place the unit in MODE 3 within 7 hours, MODE 4 within 13 hours, and MODE 5 within 37 hours. This changes the CTS by requiring entry into LCO 3.0.3 when two CREVS are inoperable for reasons other than an inoperable control room envelope (CRE) boundary or actions taken as a result of a tornado warning.

With two CREVS inoperable for reasons other than an inoperable control room envelope (CRE) boundary or actions taken as a result of a tornado warning, the CREVS may not be able to perform its intended safety function. The convention of the ITS is to require an immediate entry into LCO 3.0.3 when the intended

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DISCUSSION OF CHANGES
ITS 3.7.10, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)

function cannot be met. This change is designated as less restrictive because additional time is allowed to bring the unit to MODE 3 and MODE 5.

L02 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* CTS 4.7.7.e.2 requires verification that on a safety injection signal or a high radiation signal from the air intake stream, CREVS automatically diverts its inlet flow through the HEPA filters and charcoal adsorber banks. ITS SR 3.7.10.4 requires verification that each CREVS train actuates on an actual or simulated actuation signal. This changes the CTS by explicitly allowing the use of either an actual or simulated signal for the test.

The purpose of CTS 4.7.7.e.2 is to ensure the CREVS actuates upon receipt of a safety injection signal or a high radiation signal. This change is acceptable, because it has been determined that the current Surveillance Requirement acceptance criteria are not the only method that can be used for verification that the equipment used to meet the LCO can perform its required functions. Equipment cannot discriminate between an "actual" or "simulated" signal and, therefore, the results of the testing are unaffected by the type of signal used to initiate the test. The change also allows a simulated signal to be used, if necessary. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L03 *(Category 7 – Relaxation of Surveillance Frequency)* CTS 4.7.7.b requires the operation of each CREVS every 31 days on a STAGGERED TEST BASIS. ITS SR 3.7.10.2 requires the operation of each CREVS train every 31 days. This changes the CTS by deleting the requirement to perform the verification on a STAGGERED TEST BASIS. See DOC LA02 for the discussion on moving the 31 day Frequency to the Surveillance Frequency Control Program.

The purpose of CTS 4.7.7.b is to ensure that CREVS is OPERABLE. The CTS 1.35 STAGGERED TEST BASIS definition, defines a testing schedule for n systems, subsystems, or trains by dividing the specified test interval into n equal subintervals, with the testing of one system, subsystem, or train occurring at the beginning of each subinterval. In other words, a Surveillance Requirement to verify the OPERABILITY of each train in a two train system at a Frequency of 31 days on a STAGGERED TEST BASIS would result in each train being verified OPERABLE every 31 days, with one train being verified in alternating 15.5 day subintervals. Removal of the STAGGERED TEST BASIS scheduling requirement does not change the requirement to verify the OPERABILITY of each train every 31 days, but rather removes the requirement to schedule testing every 15.5 days. The new Surveillance Frequency will not change the testing Frequency of each train. The intent of the CTS staggered testing requirement is to evenly distribute testing of each CREVS train across the system. However, as each CREVS train is independent, no increase in reliability or safety is achieved by evenly staggering the testing subintervals. This change is acceptable, because removal of the staggered testing requirement will increase operational and scheduling flexibility without decreasing safety or system reliability. This change is designated as less restrictive, because the intervals between performances of the Surveillances for the CREVS trains can be larger or smaller under the ITS than under the CTS.

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

CTS

V
CRE~~F~~S 1
3.7.10

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency ~~Filtration~~ Ventilation System (CRE~~F~~VS) 1

3.7.7 LCO 3.7.10 Two CRE~~F~~VS trains shall be OPERABLE. 1

Footnote *

------------------------------NOTE------------------------------
The control room envelope (CRE) boundary may be opened intermittently under administrative control.

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

ACTIONS

CTS	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION a for MODES 1, 2, 3, and 4, ACTION a for MODES 5, 6, and during movement of irradiated fuel assemblies	A. One CRE~~F~~VS train inoperable for reasons other than Condition B.	A.1 Restore CRE~~F~~VS train to OPERABLE status.	7 days	1
ACTION b for MODES 1, 2, 3, and 4	B. One or more CRE~~F~~VS trains inoperable due to inoperable CRE boundary in MODE 1, 2, 3, or 4.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.3 Restore CRE boundary to OPERABLE status.	Immediately 24 hours 90 days	1

INSERT 1 3

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3

INSERT 1

ACTION c for MODES 1, 2, 3, and 4	C. Two CREVS trains inoperable due to tornado dampers not in correct position as a result of tornado warning in MODE 1, 2, 3, or 4.	C.1	Restore one CREVS train to OPERABLE status.	8 hours

CTS

CRE~~F~~S V 1
3.7.10

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTIONS a, b, and c for MODES 1, 2, 3, and 4 — ~~C~~. D Required Action and associated Completion Time of Condition A ~~or~~ , B , or C not met in MODE 1, 2, 3, or 4.	~~C~~.1 D Be in MODE 3. AND ~~C~~.2 D Be in MODE 5.	6 hours 3 1 36 hours 3
ACTION a for MODES 5, 6, and during movement of irradiated fuel assemblies — ~~D~~. E Required Action and associated Completion Time of Condition A not met ~~[~~in MODE 5 or 6, or~~]~~ during movement of ~~[recently]~~ irradiated fuel assemblies.	~~D~~.1 E ~~-------------NOTE-------------~~ ~~[Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.]~~ ~~--------------------------------~~ 3 2 Place OPERABLE CRE~~F~~S V train in ~~emergency~~ recirculation mode. OR ~~D~~.2 E Suspend movement of ~~[recently]~~ irradiated fuel assemblies.	 Immediately 1 5 Immediately 3 2

CTS

V
CRE~~F~~S
3.7.10 (1)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION b for MODES 5, 6, and during movement of irradiated fuel assemblies ~~E~~ F. Two CRE~~F~~ V S trains inoperable ~~[in MODE 5 or 6, or]~~ during movement of ~~[recently]~~ irradiated fuel assemblies. OR One or more CRE~~F~~ V S trains inoperable due to an inoperable CRE boundary ~~[in MODE 5 or 6, or]~~ during movement of ~~[recently]~~ irradiated fuel assemblies.	~~E~~ F.1 Suspend movement of ~~[recently]~~ irradiated fuel assemblies.	Immediately (3) (1) (2) (1) (2)
ACTION d for MODES 1, 2, 3, and 4 ~~F~~ G. Two CRE~~F~~ V S trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B or C.	~~F~~ G.1 Enter LCO 3.0.3.	Immediately (3) (1) (3)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
INSERT 2	(3)
4.7.7.b SR 3.7.10.~~1~~ 2 Operate each CRE~~F~~ V S train for ~~[≥ 10~~ 15 ~~continuous hours with the heaters operating or (for systems without heaters)~~ minutes ~~[~~ ≥ 15 minutes~~]~~.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ (1) (2) (4) TSTF-522

3

INSERT 2

DOC M01	SR 3.7.10.1	Verify each tornado damper that is not locked, sealed or otherwise secured in place, is in the correct position.	In accordance with the Surveillance Frequency Control Program

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
DOC A03	SR 3.7.10.~~2~~ 3	Perform required CRE~~F~~S filter testing in accordance with the ~~[~~Ventilation Filter Testing Program (VFTP)~~]~~.	In accordance with the ~~[~~VFTP~~]~~	3 1 2
4.7.7.e.2	SR 3.7.10.~~3~~ 4	Verify each CRE~~F~~S train actuates on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	3 1 4
4.7.7.h	SR 3.7.10.~~4~~ 5	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program	3

CTS

CRE~~F~~VS
3.7.10 1

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency ~~Filtration~~ Ventilation System (CRE~~F~~VS) 1

3.7.7 LCO 3.7.10 Two CRE~~F~~VS trains shall be OPERABLE. 1

Footnote *

---NOTE---
The control room envelope (CRE) boundary may be opened intermittently under administrative control.

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

ACTIONS

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
ACTION a for MODES 1, 2, 3, and 4, ACTION a for MODES 5, 6, and during movement of irradiated fuel assemblies	A. One CRE~~F~~VS train inoperable for reasons other than Condition B.	A.1	Restore CRE~~F~~VS train to OPERABLE status.	7 days	1
ACTION b for MODES 1, 2, 3, and 4	B. One or more CRE~~F~~VS trains inoperable due to inoperable CRE boundary in MODE 1, 2, 3, or 4.	B.1	Initiate action to implement mitigating actions.	Immediately	1
		<u>AND</u>			
		B.2	Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.	24 hours	
		<u>AND</u>			
		B.3	Restore CRE boundary to OPERABLE status.	90 days	

INSERT 1 3

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3

INSERT 1

ACTION c for MODES 1, 2, 3, and 4	C. Two CREVS trains inoperable due to tornado dampers not in correct position as a result of tornado warning in MODE 1, 2, 3, or 4.	C.1	Restore one CREVS train to OPERABLE status.	8 hours

CTS

CRE~~F~~ V S (1)
3.7.10

ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
ACTIONS a, b, and c for MODES 1, 2, 3, and 4	~~C~~ D. Required Action and associated Completion Time of Condition A ~~or~~ , B , or C not met in MODE 1, 2, 3, or 4.	~~C~~ D.1	Be in MODE 3.	6 hours	(3) (1)
		AND			
		~~C~~ D.2	Be in MODE 5.	36 hours	(3)
ACTION a for MODES 5, 6, and during movement of irradiated fuel assemblies	~~D~~ E. Required Action and associated Completion Time of Condition A not met ~~[~~in MODE 5 or 6, or~~]~~ during movement of ~~[recently]~~ irradiated fuel assemblies.	~~D~~ E.1	~~-------------NOTE-------------~~ ~~[Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.]~~ ~~--------------------------------~~		(3) (2)
			Place OPERABLE CRE~~F~~ V S train in ~~emergency~~ recirculation mode.	Immediately	(1) (5)
		OR			
		~~D~~ E.2	Suspend movement of ~~[recently]~~ irradiated fuel assemblies.	Immediately	(3) (2)

CTS

V
CRE~~F~~S
3.7.10 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION b for MODES 5, 6, and during movement of irradiated fuel assemblies ~~E~~. F Two CRE~~F~~S V trains inoperable ~~[~~in MODE 5 or 6, or~~]~~ during movement of ~~[recently]~~ irradiated fuel assemblies. OR One or more CRE~~F~~S V trains inoperable due to an inoperable CRE boundary ~~[~~in MODE 5 or 6, or~~]~~ during movement of ~~[recently]~~ irradiated fuel assemblies.	~~E~~.1 F Suspend movement of ~~[recently]~~ irradiated fuel assemblies.	Immediately 3 1 2 1 2
ACTION d for MODES 1, 2, 3, and 4 ~~F~~. G Two CRE~~F~~S V trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B or C.	~~F~~.1 G Enter LCO 3.0.3.	Immediately 3 1 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
INSERT 2	3
4.7.7.b SR 3.7.10.~~1~~ 2 Operate each CRE~~F~~S V train for ~~[≥ 10 continuous~~ 15 minutes ~~[~~ ~~hours with the heaters operating or (for systems without heaters)~~ ≥ 15 minutes~~]~~.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1 2 4 3 TSTF-522

SEQUOYAH UNIT 2 Amendment XXX

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3

INSERT 2

DOC M01	SR 3.7.10.1	Verify each tornado damper that is not locked, sealed or otherwise secured in place, is in the correct position.	In accordance with the Surveillance Frequency Control Program

CTS

V

CRE~~F~~S
3.7.10

1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
DOC A03	SR 3.7.10.~~2~~ 3	Perform required CRE~~F~~S filter testing in accordance with the ~~[~~Ventilation Filter Testing Program (VFTP)~~]~~.	In accordance with the ~~[~~VFTP~~]~~	3 1 2
4.7.7.e.2	SR 3.7.10.~~3~~ 4	Verify each CRE~~F~~S train actuates on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	3 1 4
4.7.7.h	SR 3.7.10.~~4~~ 5	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program	3

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JUSTIFICATION FOR DEVIATIONS
ITS 3.7.10, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)

1. 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.

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. Sequoyah Nuclear (SQN) Plant's current licensing basis contains an action for two CREVS trains inoperable due to actions taken as a result of a tornado warning while the unit is in MODE 1, 2, 3, or 4. ITS 3.7.10 ACTION C has been added to ISTS 3.7.10 to maintain the current licensing basis. Additionally, a new SR (ITS SR 3.7.10.1) has been added to verify that the tornado dampers are in the correct position for CREVS OPERABILITY. When the tornado dampers are not in the correct position, CREVS cannot maintain a positive pressure; therefore, both trains of CREVS are inoperable. Additionally, since ITS 3.7.10 ACTION C and ITS SR 3.7.10.1 have been added, the subsequent ACTIONS and SRs have been renumbered.

4. ISTS SR 3.7.10.1 and SR 3.7.10.3 (ITS SR 3.7.10.2 and SR 3.7.10.4, respectively) provide two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

5. ISTS 3.7.10 Required Action D.1 requires placing the OPERABLE CREFS train in emergency mode when the Required Action and associated Completion Time of Condition A is not met. ISTS 3.7.10 ACTION A requires restoration of the CREFS train to OPERABLE status within 7 days when one CREFS train is inoperable for reasons other than an inoperable CRE boundary in MODE 1, 2, 3, or 4. ITS 3.7.10 Required Action E.1 requires a similar action for the CREVS train, except that the CREVS is placed in the recirculation mode. This change reflects the current licensing basis.

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

B 3.7 PLANT SYSTEMS

B 3.7.10 Control Room Emergency ~~Filtration~~ Ventilation System (CRE~~F~~VS) 1

BASES

BACKGROUND

The CRE~~F~~VS provides a protected environment from which occupants can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. 1

The CRE~~F~~VS consists of two independent, redundant trains that recirculate and filter the air in the control room envelope (CRE) and a CRE boundary that limits the inleakage of unfiltered air. Each CRE~~F~~VS train consists of a ~~prefilter or demister, a~~ high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system~~, as well as demisters to remove water droplets from the air stream. A second bank of HEPA filters follows the adsorber section to collect carbon fines and provides backup in case of failure of the main HEPA filter bank~~. 1

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. INSERT 1 ~~This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident.~~ The CRE is protected during normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

The CRE~~F~~VS is an emergency system, parts of which may also operate during normal unit operations in the standby mode of operation. ~~Upon receipt of the actuating signal(s), normal air supply to the CRE is isolated, and the stream of ventilation air is recirculated through the system filter trains. The prefilters or demisters remove any large particles in the air, and any entrained water droplets present, to prevent excessive loading of the HEPA filters and charcoal adsorbers.~~ 1 ~~Continuous operation of each train for at least 10 hours per month, with the heaters on, reduces moisture buildup on the HEPA filters and adsorbers.~~ TSTF-522 ~~Both the demister and heater are important to the effectiveness of the charcoal adsorbers.~~ 1

1 **INSERT 1**

The CRE is the area within Elevation 732 of the Control Building which encompasses the Main Control Room, Technical Support Center, Men’s and Women's Locker rooms, Men’s and Women's Bathrooms, Kitchen, and Relay Room.

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 1

BASES

BACKGROUND (continued)

Actuation of the CRE~~F~~VS places the system in ~~either of two separate states (emergency radiation state or toxic gas isolation state) of~~ the emergency mode of operation~~, depending on the initiation signal~~. Actuation of the system to the emergency radiation state of the emergency mode of operation, closes the unfiltered outside air intake and unfiltered exhaust dampers, and aligns the system for recirculation of the air within the CRE through the redundant trains of HEPA filters and the charcoal ~~filters~~ adsorbers. The emergency radiation state also initiates pressurization and filtered ventilation of the air supply to the CRE. 1 1

Outside air is filtered, ~~diluted with building air from the electrical equipment and cable spreading rooms,~~ and added to the air being recirculated from the CRE. Pressurization of the CRE minimizes infiltration of unfiltered air through the CRE boundary from all the surrounding areas adjacent to the CRE boundary. ~~The actions taken in the toxic gas isolation state are the same, except that the signal switches the CREFS to an isolation alignment to minimize any outside air from entering the CRE trhough the CRE boundary.~~ 1 1

The air entering the CRE is continuously monitored by radiation monitors ~~and toxic gas detectors~~. One detector output above the setpoint will cause actuation of the emergency radiation state ~~or toxic gas isolation state, as required. The actions of the toxic gas isolation state are more restrictive, and will override the actions of the emergency radiation state~~. 1

A single CRE~~F~~VS train operating at a flow rate of ~~≤ [3000]~~ 4000 cfm (±10%) will pressurize the CRE to ~~about [~~0.125~~]~~ inches water gauge relative to INSERT 2 external areas adjacent to the CRE boundary. The CRE~~F~~VS operation in maintaining the CRE habitable is discussed in the UFSAR, ~~Section [~~ Sections 6.4 and 9.4~~]~~ (Ref. 1 and 2). 1 2 2

Redundant supply and recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally open isolation dampers are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. The CRE~~F~~VS is designed in accordance with Seismic Category I requirements. 1

The CRE~~F~~VS is designed to maintain a habitable environment in the CRE for 30 days of continuous occupancy after a DBA without exceeding a ~~[~~5 rem whole body dose or its equivalent to any part of the body~~] [5 rem total effective does equivalent (TEDE)]~~. 1 2

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1 **INSERT 2**

the outside atmosphere. Additionally, CREVS maintains a slightly positive pressure relative to

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BASES

APPLICABLE SAFETY ANALYSES

The CRE~~F~~VS components are arranged in redundant, safety related ventilation trains. The location of components and ducting within the CRE ensures an adequate supply of filtered air to all areas requiring access. The CRE~~F~~VS provides airborne radiological protection for the CRE occupants, as demonstrated by the CRE occupant dose analyses for the most limiting design basis accident, fission product release presented in the UFSAR, Chapter ~~[~~15~~]~~ (Ref. ~~2~~3). 1 1 1 2

The CRE~~F~~VS provides protection from smoke and hazardous chemicals to the CRE occupants. The analysis of hazardous chemical releases demonstrates that the toxicity limits are not exceeded in the CRE following a hazardous chemical release (~~Ref. 3~~Refs. 4 and 5). The evaluation of a smoke challenge demonstrates that it will not result in the inability of the CRE occupants to control the reactor either from the control room or from the remote shutdown panels (~~Ref. 4~~Refs. 2 and 4). 1 1 1

The worst case single active failure of a component of the CRE~~F~~VS, assuming a loss of offsite power, does not impair the ability of the system to perform its design function. 1

The CRE~~F~~VS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

Two independent and redundant CRE~~F~~VS trains are required to be OPERABLE to ensure that at least one is available if a single active failure disables the other train. Total system failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose of ~~[~~5 rem whole body or its equivalent to any part of the body~~] [5 rem TEDE]~~ to the CRE occupants in the event of a large radioactive release. 1 2

Each CRE~~F~~VS train is considered OPERABLE when the individual components necessary to limit CRE occupant exposure are OPERABLE. A CRE~~F~~VS train is OPERABLE when the associated: 1 1

a. Fan is OPERABLE~~,~~; 3

b. HEPA filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions~~, and~~; 3

c. ~~Heater, demister,~~ ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained~~.~~; and 1 3 4

INSERT 3

In order for the CRE~~F~~VS trains to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke. 1

4 **INSERT 3**

d. Tornado dampers are de-activated and in the open position.

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BASES

LCO (continued)

The LCO is modified by a Note allowing the CRE boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with the operators in the CRE. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, 4, ~~[~~5, and 6,~~]~~ and during movement of ~~[recently]~~ irradiated fuel assemblies, the CRE~~F~~VS must be OPERABLE to ensure that the CRE will remain habitable during and following a DBA. 2 1

~~In [MODES 5 and 6], the CREFS is required to cope with the release from the rupture of an outside waste gas tank.~~ 1

During movement of ~~[recently]~~ irradiated fuel assemblies, the CRE~~F~~VS must be OPERABLE to cope with the release from a fuel handling accident ~~[involving handling recently irradiated fuel]~~. ~~[The CREFS is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days), due to radioactive decay.]~~ 2 1 2

ACTIONS

A.1

When one CRE~~F~~VS train is inoperable, for reasons other than an inoperable CRE boundary, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CRE~~F~~VS train is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE CRE~~F~~VS train could result in loss of CRE~~F~~VS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability. 1 1 1

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

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to ~~[~~5 rem whole body or its equivalent to 2

BASES

ACTIONS (continued)

any part of the body~~] [5 rem TEDE]~~), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days. 2

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

INSERT 4 4

D

~~C~~.1 and ~~C~~.2 4

V

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

4

INSERT 4

C.1

When both CREVS train are inoperable due to the tornado dampers not in the correct position (i.e., open and de-activated) as a result of a tornado warning, action must be taken to restore at least one train of CREVS to OPERABLE status within 8 hours. In this condition, the shutdown of the operating unit would not be reasonable in consideration that the actions that created the inoperable condition were for the protection of the operating unit and would not be expected to last for a significant duration. The 8 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and high probability that the CREVS trains can be returned to OPERABLE status within 8 hours following the tornado warning.

BASES

ACTIONS (continued)

E
~~D~~.1 and ~~D~~.2 4

~~[~~In MODE 5 or 6, or~~]~~ during movement of ~~[recently]~~ irradiated fuel V 2
assemblies, if the inoperable CRE~~F~~S train cannot be restored to 1
OPERABLE status within the required Completion Time, action must be
taken to immediately place the OPERABLE CRE~~F~~S train in the V 1
recirculation ~~emergency~~ mode. This action ensures that the remaining train is 4
OPERABLE, that no failures preventing automatic actuation will occur,
and that any active failure would be readily detected.

E
An alternative to Required Action ~~D~~.1 is to immediately suspend activities 4
that could result in a release of radioactivity that might require isolation of
the CRE. This places the unit in a condition that minimizes the accident
risk. This does not preclude the movement of fuel to a safe position.

~~[Required Action D.1 is modified by a Note indicating to place the system in the toxic gas protection mode if automatic transfer to the toxic gas protection mode is inoperable.]~~ 2

F
~~E~~.1 4

~~[~~In MODE 5 or 6, or~~]~~ during movement of ~~[recently]~~ irradiated fuel V 2
assemblies, with two CRE~~F~~S trains inoperable or with one or more 1
CREVS trains inoperable due to an inoperable CRE boundary, action
must be taken immediately to suspend activities that could result in a
release of radioactivity that might require isolation of the CRE. This
places the unit in a condition that minimizes the accident risk. This does
not preclude the movement of fuel to a safe position.

G
~~F~~.1 4

V
If both CRE~~F~~S trains are inoperable in MODE 1, 2, 3, or 4 for reasons 1
other than an inoperable CRE boundary or tornado dampers not in the correct position (i.e., Condition B or C), the CRE~~F~~S V 1 4
may not be capable of performing the intended function and the unit is in
a condition outside the accident analyses. Therefore, LCO 3.0.3 must be
entered immediately.

1

BASES

SURVEILLANCE REQUIREMENTS

INSERT 5

SR 3.7.10.~~1~~ 2

4

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing each train once every month provides an adequate check of this system. ~~Monthly heater operations~~ INSERT 6 ~~dry out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥15 minutes to demonstrate the function of the system.]~~ TSTF-522 ~~[The 31 day Frequency is based on the reliability of the equipment and the two train redundancy.~~

~~OR~~

5

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.~~
~~------]~~

6

SR 3.7.10.~~2~~ 3

4

This SR verifies that the required CRE~~F~~S V testing is performed in accordance with the ~~[~~Ventilation Filter Testing Program (VFTP)~~]~~. The ~~[~~VFTP~~]~~ includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal. Specific test Frequencies and additional information are discussed in detail in the ~~[~~VFTP~~]~~.

1 2 2

SR 3.7.10.~~3~~ 4

4

This SR verifies that each CRE~~F~~S V train starts INSERT 7 and operates on an actual or simulated INSERT 8 actuation signal. ~~[The Frequency of [18] months is based on industry operating experience and is consistent with the typical refueling cycle.~~

1

~~OR~~

5

1

4 **INSERT 5**

SR 3.7.10.1

Verifying the correct position of the tornado dampers in the CREVS flow paths provides assurance that the proper flow paths will exist for CREVS operation. This SR does not apply to tornado dampers that are locked, sealed, or otherwise secured in position, since these were verified to be in the correct position prior to locking, sealing, or securing. This Surveillance does not require any testing or damper manipulation. Rather, it involves verification that the tornado dampers are in the correct position (open and de-activated). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

TSTF-522 **INSERT 6**

Operation ~~[with the heaters on]~~ for ≥ 15 continuous minutes demonstrates OPERABILITY of the system. Periodic operation ensures that ~~[heater failure,]~~ blockage, fan or motor failure, or excessive vibration can be detected for corrective action. The CREVS train OPERABILITY will be demonstrated by initiating, from the control room, flow through the HEPA filter and charcoal adsorber train 1 1

1 **INSERT 7**

automatically, diverts its inlet flow through the HEPA filters and charcoal adsorbers,

1 **INSERT 8**

(i.e., safety injection signal or a high radiation signal from the air intake stream)

BASES

SURVEILLANCE REQUIREMENTS (continued)

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.~~
~~--]~~ 6

SR 3.7.10.~~4~~ 5 4

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than ~~[~~5 rem whole body or its equivalent to any part of the body~~] [5 rem TEDE]~~ and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. ~~5~~ 6) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. ~~6~~ 7). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. ~~7~~ 8). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

BASES

REFERENCES

1. UFSAR, Section 6.4

~~1~~ 2. UFSAR, Section ~~[~~9.4~~]~~. 2

~~2~~ 3. UFSAR, Chapter ~~[~~15~~]~~. 2

~~3~~ 4. UFSAR, Section ~~[6.4]~~ 2.2. 2

~~4~~ 5. UFSAR, Section ~~[9.5]~~ 8.3.1.2.3. 1 2

~~5~~ 6. Regulatory Guide 1.196.

~~6~~ 7. NEI 99-03, "Control Room Habitability Assessment," June 2001.

~~7~~ 8. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability," (ADAMS Accession No. ML040300694).

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 1

B 3.7 PLANT SYSTEMS

B 3.7.10 Control Room Emergency ~~Filtration~~ Ventilation System (CRE~~F~~VS) 1

BASES

BACKGROUND

The CRE~~F~~VS provides a protected environment from which occupants can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. 1

The CRE~~F~~VS consists of two independent, redundant trains that recirculate and filter the air in the control room envelope (CRE) and a CRE boundary that limits the inleakage of unfiltered air. Each CRE~~F~~VS train consists of a ~~prefilter or demister, a~~ high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system~~, as well as demisters to remove water droplets from the air stream. A second bank of HEPA filters follows the adsorber section to collect carbon fines and provides backup in case of failure of the main HEPA filter bank~~. 1

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. INSERT 1 ~~This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident.~~ The CRE is protected during normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

The CRE~~F~~VS is an emergency system, parts of which may also operate during normal unit operations in the standby mode of operation. ~~Upon receipt of the actuating signal(s), normal air supply to the CRE is isolated, and the stream of ventilation air is recirculated through the system filter trains. The prefilters or demisters remove any large particles in the air, and any entrained water droplets present, to prevent excessive loading of the HEPA filters and charcoal adsorbers.~~ 1 ~~Continuous operation of each train for at least 10 hours per month, with the heaters on, reduces moisture buildup on the HEPA filters and adsorbers.~~ TSTF-522 ~~Both the demister and heater are important to the effectiveness of the charcoal adsorbers.~~ 1

 1

1 **INSERT 1**

The CRE is the area within Elevation 732 of the Control Building which encompasses the Main Control Room, Technical Support Center, Men’s and Women's Locker rooms, Men’s and Women's Bathrooms, Kitchen, and Relay Room.

BASES

BACKGROUND (continued)

Actuation of the CRE~~F~~VS places the system in ~~either of two separate states (emergency radiation state or toxic gas isolation state) of~~ the emergency mode of operation~~, depending on the initiation signal~~. Actuation of the system to the emergency radiation state of the emergency mode of operation, closes the unfiltered outside air intake and unfiltered exhaust dampers, and aligns the system for recirculation of the air within the CRE through the redundant trains of HEPA filters and the charcoal ~~filters~~ adsorbers. The emergency radiation state also initiates pressurization and filtered ventilation of the air supply to the CRE. 1 1

Outside air is filtered, ~~diluted with building air from the electrical equipment and cable spreading rooms,~~ and added to the air being recirculated from the CRE. Pressurization of the CRE minimizes infiltration of unfiltered air through the CRE boundary from all the surrounding areas adjacent to the CRE boundary. ~~The actions taken in the toxic gas isolation state are the same, except that the signal switches the CREFS to an isolation alignment to minimize any outside air from entering the CRE trhough the CRE boundary.~~ 1 1

The air entering the CRE is continuously monitored by radiation ~~and toxic gas detectors~~ monitors. One detector output above the setpoint will cause actuation of the emergency radiation state ~~or toxic gas isolation state, as required. The actions of the toxic gas isolation state are more restrictive, and will override the actions of the emergency radiation state~~. 1

A single CRE~~F~~VS train operating at a flow rate of ~~≤ [3000]~~ 4000 cfm (±10%) will pressurize the CRE to ~~about~~ ~~[~~0.125~~]~~ inches water gauge relative to INSERT 2 external areas adjacent to the CRE boundary. The CRE~~F~~VS operation in maintaining the CRE habitable is discussed in the UFSAR, ~~Section [~~Sections 6.4 and 9.4~~]~~ (Ref. 1 and 2). 1 2 2

Redundant supply and recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally open isolation dampers are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. The CRE~~F~~VS is designed in accordance with Seismic Category I requirements. 1

The CRE~~F~~VS is designed to maintain a habitable environment in the CRE for 30 days of continuous occupancy after a DBA without exceeding a ~~[~~5 rem whole body dose or its equivalent to any part of the body~~] [5 rem total effective does equivalent (TEDE)]~~. 1 2

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1 **INSERT 2**

the outside atmosphere. Additionally, CREVS maintains a slightly positive pressure relative to

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BASES

APPLICABLE SAFETY ANALYSES

The CRE~~F~~VS components are arranged in redundant, safety related ventilation trains. The location of components and ducting within the CRE ensures an adequate supply of filtered air to all areas requiring access. The CRE~~F~~VS provides airborne radiological protection for the CRE occupants, as demonstrated by the CRE occupant dose analyses for the most limiting design basis accident, fission product release presented in the UFSAR, Chapter ~~[~~15~~]~~ (Ref. ~~2~~3). 1 1 1 2

The CRE~~F~~VS provides protection from smoke and hazardous chemicals to the CRE occupants. The analysis of hazardous chemical releases demonstrates that the toxicity limits are not exceeded in the CRE following a hazardous chemical release (~~Ref. 3~~Refs. 4 and 5). The evaluation of a smoke challenge demonstrates that it will not result in the inability of the CRE occupants to control the reactor either from the control room or from the remote shutdown panels (~~Ref. 4~~Refs. 2 and 4). 1 1 1

The worst case single active failure of a component of the CRE~~F~~VS, assuming a loss of offsite power, does not impair the ability of the system to perform its design function. 1

The CRE~~F~~VS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

Two independent and redundant CRE~~F~~VS trains are required to be OPERABLE to ensure that at least one is available if a single active failure disables the other train. Total system failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose of ~~[~~5 rem whole body or its equivalent to any part of the body~~] [5 rem TEDE]~~ to the CRE occupants in the event of a large radioactive release. 1 2

Each CRE~~F~~VS train is considered OPERABLE when the individual components necessary to limit CRE occupant exposure are OPERABLE. A CRE~~F~~VS train is OPERABLE when the associated: 1 1

a. Fan is OPERABLE~~,~~; 3

b. HEPA filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions~~, and~~; 3

c. ~~Heater, demister,~~ ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained~~.~~; and 1 3 4

INSERT 3

In order for the CRE~~F~~VS trains to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke. 1

4 **INSERT 3**

d. Tornado dampers are de-activated and in the open position.

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BASES

LCO (continued)

The LCO is modified by a Note allowing the CRE boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with the operators in the CRE. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, 4, ~~[~~5, and 6,~~]~~ and during movement of ~~[recently]~~ irradiated fuel assemblies, the CRE~~F~~VS must be OPERABLE to ensure that the CRE will remain habitable during and following a DBA. 2 1

~~In [MODES 5 and 6], the CREFS is required to cope with the release from the rupture of an outside waste gas tank.~~ 1

During movement of ~~[recently]~~ irradiated fuel assemblies, the CRE~~F~~VS must be OPERABLE to cope with the release from a fuel handling accident ~~[involving handling recently irradiated fuel]~~. ~~[The CREFS is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days), due to radioactive decay.]~~ 2 1 2

ACTIONS

A.1

When one CRE~~F~~VS train is inoperable, for reasons other than an inoperable CRE boundary, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CRE~~F~~VS train is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE CRE~~F~~VS train could result in loss of CRE~~F~~VS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability. 1 1 1

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

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to ~~[~~5 rem whole body or its equivalent to 2

BASES

ACTIONS (continued)

any part of the body~~] [5 rem TEDE]~~), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days. 2

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

INSERT 4 4

D

~~C~~.1 and ~~C~~.2 4

V

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

4

INSERT 4

C.1

When both CREVS train are inoperable due to the tornado dampers not in the correct position (i.e., open and de-activated) as a result of a tornado warning, action must be taken to restore at least one train of CREVS to OPERABLE status within 8 hours. In this condition, the shutdown of the operating unit would not be reasonable in consideration that the actions that created the inoperable condition were for the protection of the operating unit and would not be expected to last for a significant duration. The 8 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and high probability that the CREVS trains can be returned to OPERABLE status within 8 hours following the tornado warning.

BASES

ACTIONS (continued)

D.1 and D.2

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, if the inoperable CREFS train cannot be restored to OPERABLE status within the required Completion Time, action must be taken to immediately place the OPERABLE CREFS train in the ~~emergency~~ mode. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure would be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

~~[Required Action D.1 is modified by a Note indicating to place the system in the toxic gas protection mode if automatic transfer to the toxic gas protection mode is inoperable.]~~

E.1

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, with two CREFS trains inoperable or with one or more CREVS trains inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

F.1

If both CREFS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable CRE boundary (i.e., Condition B), the CREFS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

BASES

SURVEILLANCE REQUIREMENTS

INSERT 5

SR 3.7.10.~~1~~ 2 4

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing each train once every month provides an adequate check of this system. ~~Monthly heater operations~~ INSERT 6 ~~dry out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥15 minutes to demonstrate the function of the system.]~~ TSTF-522 ~~[The 31 day Frequency is based on the reliability of the equipment and the two train redundancy.~~ 5

~~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.~~ 6
~~---]~~

SR 3.7.10.~~2~~ 3 4

This SR verifies that the required CRE~~F~~S V testing is performed in accordance with the ~~[~~Ventilation Filter Testing Program (VFTP)~~]~~. The ~~[~~VFTP~~]~~ includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal. Specific test Frequencies and additional information are discussed in detail in the ~~[~~VFTP~~]~~. 1 2 2

SR 3.7.10.~~3~~ 4 4

This SR verifies that each CRE~~F~~S V train starts INSERT 7 and operates on an actual or simulated INSERT 8 actuation signal. ~~[The Frequency of [18] months is based on industry operating experience and is consistent with the typical refueling cycle.~~ 1 5

~~OR~~

4 **INSERT 5**

SR 3.7.10.1

Verifying the correct position of the tornado dampers in the CREVS flow paths provides assurance that the proper flow paths will exist for CREVS operation. This SR does not apply to tornado dampers that are locked, sealed, or otherwise secured in position, since these were verified to be in the correct position prior to locking, sealing, or securing. This Surveillance does not require any testing or damper manipulation. Rather, it involves verification that the tornado dampers are in the correct position (open and de-activated). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

TSTF-522 **INSERT 6**

Operation ~~[with the heaters on]~~ for ≥ 15 continuous minutes demonstrates OPERABILITY of the system. Periodic operation ensures that ~~[heater failure,]~~ blockage, fan or motor failure, or excessive vibration can be detected for corrective action. The CREVS train OPERABILITY will be demonstrated by initiating, from the control room, flow through the HEPA filter and charcoal adsorber train 1 1

1 **INSERT 7**

automatically, diverts its inlet flow through the HEPA filters and charcoal adsorbers,

1 **INSERT 8**

(i.e., safety injection signal or a high radiation signal from the air intake stream)

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BASES

SURVEILLANCE REQUIREMENTS (continued)

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.~~
~~--]~~ 6

SR 3.7.10.~~4~~5 4

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than ~~[~~5 rem whole body or its equivalent to any part of the body~~] [5 rem TEDE]~~ and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. ~~5~~6) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. ~~6~~7). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. ~~7~~8). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

BASES

REFERENCES

1. UFSAR, Section 6.4

~~1~~2. UFSAR, Section ~~[~~9.4~~]~~.

~~2~~3. UFSAR, Chapter ~~[~~15~~]~~.

~~3~~4. UFSAR, Section ~~[6.4]~~ 2.2.

~~4~~5. UFSAR, Section ~~[9.5]~~ 8.3.1.2.3.

~~5~~6. Regulatory Guide 1.196.

~~6~~7. NEI 99-03, "Control Room Habitability Assessment," June 2001.

~~7~~8. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability," (ADAMS Accession No. ML040300694).

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.10 BASES, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)

1. 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.

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. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Technical Specifications, TSTF-GG-05-01, Section 5.1.3.

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

5. ISTS SR 3.7.10.1 and SR 3.7.10.4 (ITS SR 3.7.10.2 and SR 3.7.10.4) Bases provide two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program. Additionally, the Frequency description, which is being removed, will be included in the Surveillance Frequency Control Program.

6. 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.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.10, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)

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

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ATTACHMENT 11

ITS 3.7.11, CONTROL ROOM AIR-CONDITIONING SYSTEM (CRACS)

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

PLANT SYSTEMS

3/4.7.15 CONTROL ROOM AIR-CONDITIONING SYSTEM (CRACS)

LIMITING CONDITION FOR OPERATION

LCO 3.7.11 3.7.15 Two ~~independent~~ control room air-conditioning system~~s~~ trains (CRACS) shall be OPERABLE. LA01 A03

Applicability APPLICABILITY: ALL MODES and during movement of irradiated fuel assemblies

ACTION:

ACTION A, ACTION B, ACTION E — MODES 1, 2, 3, or 4

ACTION A — a. With one CRACS train inoperable, restore the inoperable ~~system~~ train to OPERABLE status within 30 days

ACTION B — or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. A03

ACTION E — b. With both CRACS trains inoperable, immediately enter LCO 3.0.3.~~*~~ A02

ACTION A, ACTION C, ACTION D — MODES 5 or 6, or during movement of irradiated fuel assemblies

ACTION A — a. With one CRACS train inoperable, restore the inoperable ~~system~~ train to OPERABLE status within 30 days

ACTION C — or initiate and maintain operation of the OPERABLE CRACS or suspend movement of irradiated fuel assemblies. A03

ACTION D — b. With both CRACS trains inoperable, suspend movement of irradiated fuel assemblies.

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1 — 4.7.15 Each CRACS shall be demonstrated OPERABLE:

a. ~~At least once per 18 months by~~ verifying each CRACS train has the capability to remove the assumed heat load In accordance with the Surveillance Frequency Control Program. LA02

~~* An allowance to monitor control room temperature every four hours and verify less than or equal to 90 degrees Fahrenheit is permitted for up to seven days in lieu of the immediate entry into LCO 3.0.3. If control room temperature exceeds 90 degrees Fahrenheit or the duration without a train of CRACS being OPERABLE exceeds seven days, the immediate entry into LCO 3.0.3 will be required. This provision is only applicable during maintenance activities planned for the upgrade of the CRACS compressors and controls and expires on March 31, 2005.~~ A02

PLANT SYSTEMS

3/4.7.15 CONTROL ROOM AIR-CONDITIONING SYSTEM (CRACS)

LIMITING CONDITION FOR OPERATION

LCO 3.7.11 3.7.15 Two ~~independent~~ control room air-conditioning system~~s~~ trains (CRACS) shall be OPERABLE. LA01 A03

Applicability APPLICABILITY: ALL MODES and during movement of irradiated fuel assemblies

ACTION:

ACTION A, ACTION B, ACTION E MODES 1, 2, 3, or 4

ACTION A a. With one CRACS train inoperable, restore the inoperable ~~system~~ train to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN A03

ACTION B within the following 30 hours.

ACTION E b. With both CRACS trains inoperable, immediately enter LCO 3.0.3.~~*~~ A02

ACTION A, ACTION C, ACTION D MODES 5 or 6, or during movement of irradiated fuel assemblies

ACTION A a. With one CRACS train inoperable, restore the inoperable ~~system~~ train to OPERABLE status within 30 days or initiate and maintain operation of the OPERABLE CRACS A03

ACTION C or
suspend movement of irradiated fuel assemblies.

ACTION D b. With both CRACS trains inoperable, suspend movement of irradiated fuel assemblies.

SURVEILLANCE REQUIREMENTS

4.7.15 Each CRACS shall be demonstrated OPERABLE:

SR 3.7.11.1 a. ~~At least once per 18 months by~~ In accordance with the Surveillance Frequency Control Program verifying each CRACS train has the capability to remove the assumed heat load. LA02

~~* An allowance to monitor control room temperature every four hours and verify less than or equal to 90 degrees Fahrenheit is permitted for up to seven days in lieu of the immediate entry into LCO 3.0.3. If control room temperature exceeds 90 degrees Fahrenheit or the duration without a train of CRACS being OPERABLE exceeds seven days, the immediate entry into LCO 3.0.3 will be required. This provision is only applicable during maintenance activities planned for the upgrade of the CRACS compressors and controls and expires on March 31, 2005.~~ A02

DISCUSSION OF CHANGES
ITS 3.7.11, CONTROL ROOM AIR-CONDITIONING SYSTEM (CRACS)

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 3.7.15 ACTION b, for MODE 1, 2, 3, or 4, contains a footnote (footnote *) which states "an allowance to monitor control room temperature every four hours and verify less than or equal to 90 degrees Fahrenheit is permitted for up to seven days in lieu of the immediate entry into LCO 3.0.3. If control room temperature exceeds 90 degrees Fahrenheit or the duration without a train of Control Room Air-Conditioning System (CRACS) being OPERABLE exceeds seven days, the immediate entry into LCO 3.0.3 will be required. This provision is only applicable during maintenance activities planned for the upgrade of the CRACS compressors and controls and expires on March 31, 2005." ITS 3.7.11 does not contain this footnote. This changes the CTS by not including footnote *.

The purpose of footnote * was to add an allowance to the Technical Specification during the upgrade of the CRACS compressor and controls. As stated in the footnote, this allowance expired on Mach 31, 2005. Since the allowance period has expired, this note is no longer needed. This change is designated as administrative because it does not result in a technical change to the CTS.

A03 CTS 3.7.15 requires two control room air conditioning systems (CRACS) to be OPERABLE. CTS 3.7.15 ACTION a for MODES 1, 2, 3, or 4 requires with one CRACS inoperable to restore the inoperable system to OPERABLE status. CTS 3.7.15 ACTION b for MODES 1, 2, 3, or 4 requires with both CRACS inoperable to immediately enter LCO 3.0.3. CTS 3.7.15 ACTION a for MODES 5 or 6, or during movement of irradiated fuel assemblies requires with one inoperable CRACS to restore the inoperable system (CRACS) to OPERABLE status. CTS 3.7.15 ACTION b for MODES 5 or 6, or during movement of irradiated fuel assemblies requires with both CRACS inoperable to suspend movement of irradiated fuel assemblies. CTS 4.7.15 a requires verification that each CRACS train has the capability to remove the assumed heat load. ITS LCO 3.7.11 requires two CRACS trains to be OPERABLE. ITS 3.7.11 ACTION A requires with one CRACS train inoperable, in MODE 1, 2, 3, 4, 5, or 6 or during movement of irradiated fuel assemblies, to restore the CRACS train to OPERABLE status. ITS 3.7.11 ACTION D requires with two CRACS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies to suspend movement of irradiated fuel assemblies. ITS 3.7.11 ACTION E requires with CRACS trains inoperable in MODE 1, 2, 3, or 4 to enter LCO 3.0.3. This changes the CTS by explicitly stating that the CRACS are trains.

DISCUSSION OF CHANGES
ITS 3.7.11, CONTROL ROOM AIR-CONDITIONING SYSTEM (CRACS)

CTS 3.7.15 and associated ACTIONS and Surveillance Requirements inconsistently refer to CRACS “systems” and “trains.” ITS LCO 3.7.11, ACTION A, ACTION D, and ACTION E explicitly state that the CRACS contains two trains. This is a change in presentation only and therefore designated as administrative because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.7.15 states that two "independent" control room air-conditioning systems (CRACS) shall be OPERABLE. ITS 3.7.11 requires two CRACS trains to be OPERABLE, but does not contain the detail that the trains must be independent. This changes the CTS by moving the detail that the CRACS trains are independent to the Bases.

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

LA02 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.7.14 a requires, in part, verification of each CRACS train has the capability to remove the assumed heat load at least once per 18 months. ITS SR 3.7.11.1 requires a similar Surveillance and specifies the periodic Frequency as, "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequency for the SR to the Surveillance Frequency Control Program.

The removal of these details related to Surveillance Requirement Frequencies 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 existing Surveillance Frequencies are removed from Technical Specifications and placed under

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licensee control pursuant to the methodology described in NEI 04-10. A new program (Surveillance Frequency Control Program) is being added to the Administrative Controls section of the Technical Specifications describing the control of Surveillance Frequencies. The surveillance test requirements remain in the Technical Specifications. The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. This change is designated as a less restrictive removal of detail change, because the Surveillance Frequencies are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

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

3.7 PLANT SYSTEMS

3.7.11 Control Room Air-Conditioning ~~Emergency Air Temperature Control~~ System (CRACS ~~CREATCS~~) 1

3.7.15

LCO 3.7.11 Two CRACS ~~CREATCS~~ trains shall be OPERABLE. 1

Applicability

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

ACTIONS

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

1

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION b for MODES 1, 2, 3, or 4	E. Two CRACS ~~CREATCS~~ trains inoperable in MODE 1, 2, 3, or 4.	E.1 Enter LCO 3.0.3.	Immediately	1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
4.7.15.a	SR 3.7.11.1	Verify each CRACS ~~CREATCS~~ train has the capability to remove the assumed heat load.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1 3 3

 1

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CTS

CRACS ~~CREATCS~~ 1
3.7.11

3.7 PLANT SYSTEMS

3.7.11 Control Room Air-Conditioning ~~Emergency Air Temperature Control~~ System (CRACS ~~CREATCS~~) 1

3.7.15 LCO 3.7.11 Two CRACS ~~CREATCS~~ trains shall be OPERABLE. 1

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

ACTIONS

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

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CTS

CRACS ~~CREATCS~~ 1
3.7.11

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION b for MODES 1, 2, 3, or 4 — E. Two CRACS ~~CREATCS~~ trains inoperable in MODE 1, 2, 3, or 4.	E.1 Enter LCO 3.0.3.	Immediately 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
4.7.15.a SR 3.7.11.1	Verify each CRACS ~~CREATCS~~ train has the capability to remove the assumed heat load.	~~[[18] months~~ 1 3 ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 3

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JUSTIFICATION FOR DEVIATIONS
ITS 3.7.11, CONTROL ROOM AIR-CONDITIONING SYSTEM (CRACS)

1. 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.

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. ISTS SR 3.7.11.1 provides two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

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

B 3.7 PLANT SYSTEMS

B 3.7.11 Control Room Air-Conditioning ~~Emergency Air Temperature Control~~ System (CRACS ~~CREATCS~~) 1

BASES

BACKGROUND

The CRACS ~~CREATCS~~ provides temperature control for the control room following isolation of the control room. 1

The CRACS ~~CREATCS~~ consists of two independent and redundant trains that provide cooling and heating of recirculated control room air. Each train consists of a chiller package ~~heating coils~~, cooling coils, air handling unit, instrumentation, and controls to provide for control room temperature control. The CRACS ~~CREATCS~~ is a subsystem providing air temperature control for the control room. 1

The CRACS ~~CREATCS~~ is an emergency system, parts of which may also operate during normal unit operations. A single train will provide the required temperature control to maintain the control room at approximately ~~between [70]° and [85]~~ 75° F. The CRACS ~~CREATCS~~ operation in maintaining the control room temperature is discussed in the UFSAR, Section ~~[6~~9.4~~]~~ (Ref. 1). 1 2

APPLICABLE SAFETY ANALYSES

The design basis of the CRACS ~~CREATCS~~ is to maintain the control room temperature for 30 days of continuous occupancy. 1

The CRACS ~~CREATCS~~ components are arranged in redundant, safety related trains. During emergency operation, the CRACS ~~CREATCS~~ maintains the temperature at approximately ~~between [70]° and [85]°~~ 75 ° F. INSERT 1 A single active failure of a component of the CRACS ~~CREATCS~~, with a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for control room temperature control. The CRACS ~~CREATCS~~ is designed in accordance with Seismic Category I requirements. The CRACS ~~CREATCS~~ is capable of removing sensible and latent heat loads from the control room, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment OPERABILITY. 1 2 1 1

The CRACS ~~CREATCS~~ satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

Two independent and redundant trains of the CRACS ~~CREATCS~~ are required to be OPERABLE to ensure that at least one is available, assuming a single failure disabling the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident. 1

1 **INSERT 1**

In addition, the CRACS is designed to maintain the control room temperature at less than the maximum abnormal postulated temperature of 104° F.

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BASES

LCO (continued)

The CRACS ~~CREATCS~~ is considered to be OPERABLE when the individual components necessary to maintain the control room temperature are OPERABLE in both trains. These components include the ~~heating and~~ cooling coils, chiller package, air handling unit, and associated temperature control instrumentation. In addition, the CRACS ~~CREATCS~~ must be OPERABLE ~~operable~~ to the extent that air circulation can be maintained. 1 3

APPLICABILITY

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

~~[In MODE 5 or 6,] CREATCS may not be required for those facilities that do not require automatic control room isolation.~~ 4

ACTIONS

A.1

With one CRACS ~~CREATCS~~ train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CRACS ~~CREATCS~~ train is adequate to maintain the control room temperature within limits. However, the overall reliability is reduced because a single failure in the OPERABLE CRACS ~~CREATCS~~ train could result in loss of CRACS ~~CREATCS~~ function. The 30 day Completion Time is based on the low probability of an event requiring control room isolation, the consideration that the remaining train can provide the required protection, and that alternate safety or nonsafety related cooling means are available. 1 1 1

B.1 and B.2

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

BASES

ACTIONS (continued)

C.1 and C.2

~~[~~ In MODE 5 or 6, or~~]~~ during movement of ~~[recently]~~ irradiated fuel, if the inoperable CRACS ~~CREATCS~~ train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE ~~CREATCS~~ train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that active failures will be readily detected. 2 1

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

D.1

~~[~~In MODE 5 or 6, or~~]~~ during movement of ~~[recently]~~ irradiated fuel assemblies, with two CRACS ~~CREATCS~~ trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position. 2 1

E.1

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

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

This SR verifies that the heat removal capability of the system is sufficient to remove the heat load assumed in the ~~[~~safety analyses~~]~~ in the control room. This SR consists of a combination of testing and calculations. ~~[The [18] month Frequency is appropriate since significant degradation of the CREATCS is slow and is not expected over this time period.~~ 2 5

~~OR~~

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

1

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.~~
~~--]~~

6

REFERENCES

U

1. FSAR, Section ~~[6~~.4~~]~~. 9

1 2

1

B 3.7 PLANT SYSTEMS

B 3.7.11 Control Room ~~Emergency Air~~ Air-Conditioning ~~Temperature Control~~ System (~~CREATCS~~ CRACS) 1

BASES

BACKGROUND

The ~~CREATCS~~ CRACS provides temperature control for the control room following isolation of the control room. 1

The ~~CREATCS~~ CRACS consists of two independent and redundant trains that provide cooling and heating of recirculated control room air. Each train consists of ~~heating coils~~ a chiller package, cooling coils, air handling unit, instrumentation, and controls to provide for control room temperature control. The ~~CREATCS~~ CRACS is a subsystem providing air temperature control for the control room. 1

The ~~CREATCS~~ CRACS is an emergency system, parts of which may also operate during normal unit operations. A single train will provide the required temperature control to maintain the control room ~~between [70]° and [85]~~ at approximately 75°F. The ~~CREATCS~~ CRACS operation in maintaining the control room temperature is discussed in the UFSAR, Section ~~[6~~9.4~~]~~ (Ref. 1). 1 2

APPLICABLE SAFETY ANALYSES

The design basis of the ~~CREATCS~~ CRACS is to maintain the control room temperature for 30 days of continuous occupancy. 1

The ~~CREATCS~~ CRACS components are arranged in redundant, safety related trains. During emergency operation, the ~~CREATCS~~ CRACS maintains the temperature ~~between [70]° and [85]°~~ at approximately 75 ° F. INSERT 1 A single active failure of a component of the ~~CREATCS~~ CRACS, with a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for control room temperature control. The ~~CREATCS~~ CRACS is designed in accordance with Seismic Category I requirements. The ~~CREATCS~~ CRACS is capable of removing sensible and latent heat loads from the control room, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment OPERABILITY. 1 2

The ~~CREATCS~~ CRACS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

Two independent and redundant trains of the ~~CREATCS~~ CRACS are required to be OPERABLE to ensure that at least one is available, assuming a single failure disabling the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident. 1

1 **INSERT 1**

In addition, the CRACS is designed to maintain the control room temperature at less than the maximum abnormal postulated temperature of 104° F.

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BASES

LCO (continued)

CRACS

The ~~CREATCS~~ is considered to be OPERABLE when the individual components necessary to maintain the control room temperature are OPERABLE in both trains. These components include the ~~heating and~~ cooling coils , chiller package, air handling unit, and associated temperature control instrumentation. In addition, the ~~CREATCS~~ CRACS must be ~~operable~~ OPERABLE to the extent that air circulation can be maintained. 1 1 3

APPLICABILITY

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

~~[In MODE 5 or 6,] CREATCS may not be required for those facilities that do not require automatic control room isolation.~~ 4

ACTIONS

A.1

CRACS

With one ~~CREATCS~~ train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE ~~CREATCS~~ CRACS train is adequate to maintain the control room temperature within limits. However, the overall reliability is reduced because a single failure in the OPERABLE ~~CREATCS~~ train could result in loss of ~~CREATCS~~ CRACS function. The 30 day Completion Time is based on the low probability of an event requiring control room isolation, the consideration that the remaining train can provide the required protection, and that alternate safety or nonsafety related cooling means are available. 1 1 1

B.1 and B.2

CRACS

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

BASES

ACTIONS (continued)

C.1 and C.2

~~[~~ In MODE 5 or 6, or~~]~~ during movement of ~~[recently]~~ irradiated fuel, if the inoperable CRACS ~~CREATCS~~ train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CRACS ~~CREATCS~~ train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that active failures will be readily detected. 2 1

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

D.1

~~[~~In MODE 5 or 6, or~~]~~ during movement of ~~[recently]~~ irradiated fuel assemblies, with two CRACS ~~CREATCS~~ trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position. 2 1

E.1

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

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

This SR verifies that the heat removal capability of the system is sufficient to remove the heat load assumed in the ~~[~~safety analyses~~]~~ in the control room. This SR consists of a combination of testing and calculations. 2 ~~[The [18] month Frequency is appropriate since significant degradation of the CREATCS is slow and is not expected over this time period.~~

~~OR~~ 5

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.~~
~~----------]~~ 6

REFERENCES	1. U FSAR, Section ~~[6~~ 9.4~~]~~. 1 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.11 BASES, CONTROL ROOM AIR-CONDITIONING SYSTEM (CRACS)

1. 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.

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. Typographical/grammatical error corrected and editorial change made for enhanced clarity.

4. ISTS Applicability states that [In MODE 5 or 6,] CREATCS may not be required for those facilities that do not require automatic control room isolation. Because SQN requires CRAC to be OPERABLE in MODES 5 and 6 this statement is unnecessary and is removed.

5. ISTS SR 3.7.11.1 provides two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

6. 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.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.11, CONTROL ROOM AIR-CONDITIONING SYSTEM (CRACS)

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

ATTACHMENT 12

ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

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

ITS A01 ITS 3.7.12

PLANT SYSTEMS

3/4.7.8 AUXILIARY BUILDING GAS TREATMENT SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.7.12 3.7.8 Two ~~independent~~ auxiliary building gas treatment filter trains shall be OPERABLE. LA01

~~Add proposed LCO Note 1~~ ~~L01~~

Applicability APPLICABILITY: MODES 1, 2, 3 and 4.

MHC005

ACTION:

Add proposed ACTION Note L02

ACTION A With one auxiliary building gas treatment filter train inoperable, restore the inoperable train to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN

ACTION C within the following 30 hours.

Add proposed ACTION B L02

Add proposed ACTION C, 2nd Condition

SURVEILLANCE REQUIREMENTS

SR 3.7.12.1, SR 3.7.12.3, SR 3.7.12.4 4.7.8 Each auxiliary building gas treatment filter train shall be demonstrated OPERABLE: In accordance with the Surveillance Frequency Control Program LA02

SR 3.7.12.1 a. At least ~~once per 31 days on a STAGGERED TEST BASIS~~ by initiating, ~~from the control room, flow through the HEPA filter and charcoal adsorber train~~ and verifying that the system operates for at least ~~10 hours~~ with the heaters on. L03 LA03 15 continuous minutes L04

Add proposed SR 3.7.12.2 A02

b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978 (except for the provisions of ANSI N510 Sections 8 and 9), and the system flow rate is 9000 cfm ± 10%.

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86° F) and a relative humidity of 70%.

3. Verifying a system flow rate of 9000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

See ITS 5.5.9

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A01

ITS ITS 3.7.12

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86° F) and a relative humidity of 70%. See ITS 5.5.9

SR 3.7.12.3, SR 3.7.12.4 d. ~~At least once per 18 months~~ In accordance with the Surveillance Frequency Control Program by: LA02

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 3 inches Water Gauge while operating the filter train at a flow rate of 9000 cfm ± 10%. See ITS 5.5.9

Add proposed SR 3.7.12.3 Note 1 A03

SR 3.7.12.3 2. Verifying that the filter trains start on a ~~Containment Phase A Isolation test~~ actual or simulated signal. LA04 L07

SR 3.7.12.4 3. Verifying that the system maintains ~~the spent fuel storage area and the ESF pump rooms at~~ a pressure equal to or more negative than minus 1/4 inch water gage relative the outside atmosphere while maintaining a total system flow of 9000 cfm ± 10%. ~~every 18 months on STAGGERED TEST BASIS~~ In accordance with the Surveillance Frequency Control Program LA05 L05 LA02

4. Verifying that the heaters dissipate 32 ± 3.2 kw when tested in accordance with ANSI N510-1975.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 9000 cfm ± 10%. See ITS 5.5.9

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 9000 cfm ± 10%.

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ITS

A01

ITS 3.7.12

REFUELING OPERATIONS

3/4.9.12 AUXILIARY BUILDING GAS TREATMENT SYSTEM

LIMITING CONDITION FOR OPERATION

MHC005

LCO 3.7.12 Note ~~2~~

3.9.12 One auxiliary building gas treatment filter train shall be OPERABLE.

M02

Applicability

APPLICABILITY: ~~Whenever irradiated fuel is in the storage pool~~

stored

spent fuel

During movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~.

~~L00~~

MHC006

ACTION: irradiated assemblies

STET

~~Add proposed Required Action D.1~~ ~~L06~~

ACTION D.1
ACTION E.1

a. With no auxiliary building gas treatment filter train OPERABLE, ~~suspend all operations involving movement of fuel within the spent fuel pit or crane operation with loads over the spent fuel pit until at least one auxiliary building gas treatment filter train is restored to OPERABLE status~~.

M02

ACTIONS Note

b. The provisions of Specification 3.0.3 are not applicable.

STET

~~Add proposed Action E.1 Note~~ ~~L08~~

MHC003

SURVEILLANCE REQUIREMENTS

~~L06~~

SR 3.7.12.1, SR 3.7.12.3

4.9.12 The above required auxiliary buildings gas treatment filter train shall be demonstrated OPERABLE:

In accordance with the Surveillance Frequency Control Program LA02

L03

SR 3.7.12.1

MHC006

a. ~~At least once per 31 days on a STAGGERED TEST BASIS~~ by initiating, ~~from the control room, flow through the HEPA filters and charcoal adsorbers~~ and verifying that the system operates for at least ~~10 hours~~ with the heaters on.

LA03

15 continuous minutes L04

Add proposed SR 3.7.12.2 A02

b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978 (except for the provisions of ANSI N510 Sections 8 and 9), and the system flow rate is 9000 cfm ± 10%.

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and a relative humidity of 70%.

3. Verifying a system flow rate of 9000 cfm ± 10% during system operations when tested in accordance with ANSI N510-1975.

See ITS 5.5.9

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A01

ITS

ITS 3.7.12

REFUELING OPERATIONS

SURVEILLANCE REQUIREMENTS (Continued)

c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and a relative humidity of 70%. See ITS 5.5.9

In accordance with the Surveillance Frequency Control Program LA02

SR 3.7.12.3 d. ~~At least once per 18 months~~ by:

See ITS 5.5.9

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 3 inches Water Gauge while operating the filter train at a flow rate of 9000 cfm ± 10%. A03

Add proposed SR 3.7.12.3 Note 2

actual or simulated signal L07

LA04

SR 3.7.12.3 2. Verifying that the filter train starts on ~~a high radiation signal from the fuel pool radiation monitoring system~~.

In accordance with the Surveillance Frequency Control Program LA02

Add proposed SR 3.7.12.4 with a Frequency of ~~18 months on a STAGGERED TEST BASIS~~ M01

3. Verifying that the heaters dissipate 32 ± 3.2 kw when tested in accordance with ANSI N510-1975.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 9000 cfm ± 10%. See ITS 5.5.9

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 9000 cfm ± 10%.

A01

MHC006

REFUELING OPERATIONS

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

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

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

b. A minimum of one door in each airlock is closed, and both doors of both containment personnel airlocks may be open if:

1. One personnel airlock door in each airlock is capable of closure, and

LCO 3.7.12 Note 2

2. One train of the Auxiliary Building Gas Treatment System is OPERABLE in accordance with Technical Specification 3.9.12, and

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

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

2. Be capable of being closed by an OPERABLE automatic Containment Ventilation isolation valve.

(See ITS 3.9.4)

APPLICABILTY:

3.9.4.a. Containment Building Equipment Door - During movement of recently irradiated fuel within the containment.

3.9.4.b. and c. Containment Building Airlock Doors and Penetrations - During movement of irradiated fuel within the containment.

ACTION:

1. With the requirements of the above specification not satisfied for the containment building equipment door, immediately suspend all operations involving movement of recently irradiated fuel in the containment building. The provisions of Specification 3.0.3 are not applicable.

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

(See ITS 3.9.4)

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment building penetrations shall be determined to be either in its required condition or capable of being closed by an OPERABLE automatic Containment Ventilation isolation valve once per 7 days during movement of irradiated fuel in the containment building by:

a. Verifying the penetrations are in their required condition, or

b. Verifying the Containment Ventilation isolation valves not locked, sealed, or otherwise secured in position, actuate to the isolation position on an actual or simulated actuation signal.

* Penetration flow path(s) providing direct access from the containment atmosphere that transverse and terminate in the Auxiliary Building Secondary Containment Enclosure may be unisolated under administrative controls.

A01

ITS ITS 3.7.12

PLANT SYSTEMS

3/4.7.8 AUXILIARY BUILDING GAS TREATMENT SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.7.12 3.7.8 Two ~~independent~~ auxiliary building gas treatment filter trains shall be OPERABLE. LA01

~~Add proposed LCO Note 1~~ ~~L01~~

MHC005

Applicability APPLICABILITY: Modes 1, 2, 3 and 4.

ACTION:

Add proposed ACTION Note L02

ACTION A With one auxiliary building gas treatment filter train inoperable, restore the inoperable train to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN
ACTION C within the following 30 hours.

Add proposed ACTION B L02
Add proposed ACTION C, 2[nd] Condition

SURVEILLANCE REQUIREMENTS

SR 3.7.12.1, SR 3.7.12.3, SR 3.7.12.4 4.7.8 Each auxiliary building gas treatment filter train shall be demonstrated OPERABLE: In accordance with the Surveillance Frequency Control Program LA02

SR 3.7.12.1 a. ~~At least once per 31 days on a STAGGERED TEST BASIS~~ by initiating, ~~from the control room~~, ~~flow through the HEPA filter and charcoal adsorber train~~ and verifying that the system operates for at least ~~10 hours~~ with the heaters on. L03 LA03 15 continuous minutes L04

Add proposed SR 3.7.12.2 A02

b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978 (except for the provisions of ANSI N510 Sections 8 and 9), and the system flow rate is 9000 cfm $\pm$ 10%.

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86° F) and a relative humidity of 70%.

3. Verifying a system flow rate of 9000 cfm $\pm$ 10% during system operation when tested in accordance with ANSI N510-1975.

See ITS 5.5.9

A01

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86° F) and a relative humidity of 70%. See ITS 5.5.9

SR 3.7.12.3, SR 3.7.12.4 d. ~~At least once per 18 months~~ In accordance with the Surveillance Frequency Control Program by: LA02

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 3 inches Water Gauge while operating the filter train at a flow rate of 9000 cfm ± 10%. See ITS 5.5.9

Add proposed SR 3.7.12.3 Note 1 A03

SR 3.7.12.3 2. Verifying that the filter trains start on a ~~Containment Phase A Isolation~~ actual or simulated test signal. LA04 L07

SR 3.7.12.4 3. Verifying that the system maintains ~~the spent fuel storage area and the ESF pump rooms at~~ a pressure equal to or more negative than minus 1/4 inch water gauge relative the outside atmosphere while maintaining a total system flow of 9000 cfm ± 10%. ~~every 18 months on STAGGERED TEST BASIS~~ In accordance with the Surveillance Frequency Control Program LA05 L05 LA02

4. Verifying that the heaters dissipate 32 ± 3.2 kw when tested in accordance with ANSI N510-1975.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 9000 cfm ± 10%.

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 9000 cfm ± 10%. See ITS 5.5.9

A01

REFUELING OPERATIONS

3/4.9.12 AUXILIARY BUILDING GAS TREATMENT SYSTEM

MHC005

LIMITING CONDITION FOR OPERATION

LCO 3.7.12
Note ~~2~~

3.9.12 One auxiliary building gas treatment filter train shall be OPERABLE.

M02

Applicability

APPLICABILITY: ~~Whenever irradiated fuel is in the storage pool.~~

stored

spent fuel

During movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building.~~ L06

irradiated

MHC006

ACTION:

STET

Add proposed Required Action D.1 L06

assemblies

ACTION D.1
ACTION E.1

a. With no auxiliary building gas treatment filter train OPERABLE, ~~suspend all operations involving movement of fuel within the spent fuel pit or crane operation with loads over the spent fuel pit until at least one auxiliary building gas treatment filter train is restored to OPERABLE status~~.

M02

~~Add proposed Action E.1 Note~~ ~~L08~~

ACTIONS Note

b. The provisions of Specification 3.0.3 are not applicable.

STET

MHC003

SURVEILLANCE REQUIREMENTS

SR 3.7.12.1,
SR 3.7.12.3

4.9.12 The above required auxiliary building gas treatment filter train shall be demonstrated OPERABLE:

In accordance with the Surveillance Frequency Control Program LA02

SR 3.7.12.1

L03

a. ~~At least once per 31 days on a STAGGERED TEST BASIS~~ by initiating, ~~from the control room, flow through the HEPA filters and charcoal adsorbers~~ and verifying that the system operates for at least ~~10 hours~~ with the heaters on.

LA03

MHC006

15 continuous minutes L04

Add proposed SR 3.7.12.2 A02

b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978 (except for the provisions of ANSI N510 Sections 8 and 9), and the system flow rate is 9000 cfm $\pm$ 10%.

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86° F) and a relative humidity of 70%.

3. Verifying a system flow rate of 9000 cfm $\pm$ 10% during system operation when tested in accordance with ANSI N510-1975.

See ITS 5.5.9

REFUELING OPERATIONS

SURVEILLANCE REQUIREMENTS (Continued)

c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86° F) and a relative humidity of 70%. See ITS 5.5.9

SR 3.7.12.3 d. ~~At least once per 18 months~~ In accordance with the Surveillance Frequency Control Program LA02 by:

See ITS 5.5.9

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 3 inches Water Gauge while operating the filter train at a flow rate of 9000 cfm ± 10%. A03

Add proposed SR 3.7.12.3 Note 2 L07

SR 3.7.12.3 2. Verifying that the filter train starts on actual or simulated signal LA04 ~~a high radiation signal from the fuel pool radiation monitoring system~~. In accordance with the Surveillance Frequency Control Program LA02

Add proposed SR 3.7.12.4 with a Frequency of ~~18 months on a STAGGERED TEST BASIS~~ In accordance with the Surveillance Frequency Control Program M02 1

3. Verifying that the heaters dissipate 32 ± 3.2 kw when tested in accordance with ANSI N510-1975.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 9000 cfm ± 10%. See ITS 5.5.9

MHC006

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 9000 cfm ± 10%.

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ITS

ITS 3.7.12

A01

MHC006

REFUELING OPERATIONS

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

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

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

(See ITS 3.9.4)

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

1. One personnel airlock door in each airlock is capable of closure, and

LCO 3.7.12 Note 2

2. One train of the Auxiliary Building Gas Treatment System is OPERABLE in accordance with Technical Specification 3.9.12, and

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

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

2. Be capable of being closed by an OPERABLE automatic Containment Ventilation isolation valve.

APPLICABILITY:

3.9.4.a. Containment Building Equipment Door - During movement of recently irradiated fuel within the containment.

3.9.4.b. and c. Containment Building Airlock Doors and Penetrations - During movement of irradiated fuel within the containment.

ACTION:

1. With the requirements of the above specification not satisfied for the containment building equipment door, immediately suspend all operations involving movement of recently irradiated fuel in the containment building. The provisions of Specification 3.0.3 are not applicable.

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

(See ITS 3.9.4)

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment building penetrations shall be determined to be either in its required condition or capable of being closed by an OPERABLE automatic Containment Ventilation isolation valve once per 7 days during movement of irradiated fuel in the containment building by:

a. Verifying the penetrations are in their required condition, or

b. Verifying the Containment Ventilation isolation valves not locked, sealed, or otherwise secured in position, actuate to the isolation position on an actual or simulated actuation signal.

* Penetration flow path(s) providing direct access from the containment atmosphere that transverse and terminate in the Auxiliary Building Secondary Containment Enclosure may be unisolated under administrative controls.

DISCUSSION OF CHANGES
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 4.7.8.b and CTS 4.9.12.b specify the ABGTS Surveillances to be performed after any structural maintenance on the HEPA filter or charcoal adsorber housings, or following painting, fire or chemical release in any ventilation zone communicating with the system. CTS 4.7.8.c and CTS 4.9.12.c specify the ABGTS Surveillance to be performed after every 720 hours of charcoal adsorber operation. CTS 4.7.8.d.4 and CTS 4.9.12.d.3 specify the ABGTS Surveillance to be performed to verify the heaters dissipate the proper wattage. CTS 4.7.8.e and CTS 4.9.12.e specify the ABGTS Surveillances to be performed after each complete or partial replacement of a HEPA filter bank. CTS 4.7.8.f and CTS 4.9.12.f specify the ABGTS Surveillances to be performed after complete or partial replacement of a charcoal adsorber bank. ITS SR 3.7.12.2 requires performing required ABGTS filter testing in accordance with the Ventilation Filter Testing Program (VFTP). CTS 4.7.8 and 4.9.12 do not include a VFTP, however the aforementioned CTS Surveillance Requirements will be implemented in the VFTP located in ITS 5.5.9. This changes the CTS by requiring testing in accordance with the VFTP, whose requirements are being moved to ITS 5.5.9.

This change is acceptable because filter testing requirements are being moved to the VFTP as part of ITS 5.5.9, and ITS SR 3.7.12.2 references the VFTP for performing these tests. This change is designated as administrative because it does not result in technical changes to the CTS.

, with fuel stored in the spent fuel pool,

A03 CTS 4.7.8.d.2 requires verification that the auxiliary building gas treatment filter trains start on a containment Phase A isolation test signal in MODES 1, 2, 3 and 4. CTS 4.9.12.d.2 requires verification that the auxiliary building gas treatment filter trains start on a high radiation signal from the fuel pool radiation monitoring system whenever irradiated fuel is in the storage pool. ITS SR 3.7.12.3 requires verification that each ABGTS train actuates on an actual or simulated actuation signal in MODES 1, 2, 3 and 4 and during movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~. ITS SR 3.7.12.3 is modified by two Notes. Note 1 specifies an actual or simulated actuation on Containment Phase A isolation signal is only required to be met in MODES 1, 2, 3 and 4. Note 2 specifies an actual or simulated actuation on fuel storage pool area high radiation signal is only required to be met during the movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~. This changes the CTS by adding Notes to the ABGTS train actuation Surveillance to clarify that the associated actuation signals are only required to actuate the ABGTS trains during the specified ~~conditions that they are relied upon to provide fission product removal~~. (See

MHC006

or with fuel stored in the spent fuel pool.

MODES that they are required to be OPERABLE.

or with fuel stored in the spent fuel pool

DISCUSSION OF CHANGES
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

MHC006

DOC L07 for a discussion of specifying that the actuation signal may be either actual or simulated. ~~See DOC L06 for a discussion on limiting the Applicability to the conditions during which a fuel handling accident is postulated to occur.)~~

, with fuel stored in the spent fuel pool,

The purpose of CTS 3.7.8 is to ensure the ABGTS trains are OPERABLE during the plant conditions that a loss of coolant accident is postulated to occur (MODES 1, 2, 3 and 4). The purpose of CTS 3.9.12 is to ensure that radioactive material that is released from an irradiated fuel assembly during a fuel handling accident is processed through filtration prior to release to the atmosphere (during the movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~). ITS 3.7.12 combines CTS 3.7.8 and 3.9.12 into one Specification with an Applicability of MODES 1, 2, 3 and 4 and during the movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~. This results in the need to specify the plant conditions in which each actuation signal is required to actuate ABGTS ~~to mitigate the associated accident~~. The plant conditions under which each ABGTS actuation signal is required to be OPERABLE ~~remains unchanged between CTS and ITS~~. This change is designated as administrative because it does not result in a technical change to the CTS.

is addressed in ITS 3.3.8

MORE RESTRICTIVE CHANGES

train

, with fuel stored in the spent fuel pool,

M01 CTS 4.7.8.d.3 requires verification that each ABGTS ~~system~~ can maintain the spent fuel storage area and the ESF pump rooms at a pressure equal to or less than - 0.25 inches water gauge relative to the outside atmosphere while maintaining a total system flow of 9,000 cfm plus or minus 10% every 18 months in MODES 1, 2, 3 and 4. ITS SR 3.7.12.4 requires the same verification every 18 months on a STAGGERED TEST BASIS in MODES 1, 2, 3 and 4 and during movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~. This changes the CTS by adding a Surveillance Requirement to verify the ABGTS can maintain a negative pressure at the required flow rate during movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~. (See DOC L05 for the discussion regarding the change of the testing Frequency to "on a STAGGERED TEST BASIS." See DOC LA02 for the discussion regarding movement of the Surveillance Frequency to the Surveillance Frequency Control Program.)

MHC006

or with fuel stored in the spent fuel pool.

This change is acceptable because the ABGTS is required to be OPERABLE during movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~. The Surveillance Requirement is required to verify that the ABGTS can perform its required safety function during this Applicability. This change is designated as more restrictive because an additional Surveillance Requirement is being required that was not in the CTS.

See insert 1

RELOCATED SPECIFICATIONS

None

MHC006

Insert 1

M02 CTS 3.9.12 states that the requirements of the ABGTS are applicable “Whenever irradiated fuel is in the storage pool.” CTS 3.9.12 ACTION a requires when no ABGTS is OPERABLE, suspend all operations involving movement of fuel within the spent fuel pit or crane operation with loads over the spent fuel pit until at least one ABGTS train is restored to an OPERABLE status. ITS 3.7.12 states, in part, that the requirements of the ABGTS are applicable during movement of irradiated fuel assemblies or with fuel stored in the spent fuel pool. ITS 3.7.12 ACTION D requires when one required ABGTS train is inoperable during movement of irradiated fuel assemblies, to immediately suspend movement of irradiated fuel assemblies. ITS 3.7.12 ACTION E requires when one required ABGTS train is inoperable with fuel stored in the spent fuel pool to suspend all crane operation with loads over the spent fuel pool. This changes CTS by increasing the ABGTS Specification applicability to when there is a potential for a fuel handling accident.

The purpose of CTS 3.9.12 is to ensure the ABGTS is OPERABLE to mitigate the consequences of a fuel handling accident in the Auxilary Building. This change is acceptable because the requirements continue to ensure that the structures, system and components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. The Sequoyah Nuclear Plant (SQN) fuel handling analysis has been analyzed using the methodology from Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." The SQN fuel handling analysis assumes, in part, that the accident occurs greater than 100 hours after a plant shutdown, radioactive decay during the interval between shutdown and placement of the first spent fuel assembly into the spent fuel pool is taken into account, and a single fuel assembly is damaged. The ITS imposes the controls on the ABGTS during movement of irradiated fuel assemblies and anytime fuel is stored in the spent fuel pool. This change is designated as more restrictive because the LCO requirements are applicable in more operating conditions than in the CTS.

DISCUSSION OF CHANGES
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.7.8 requires two "independent" auxiliary building gas treatment system (ABGTS) filter trains to be OPERABLE. ITS LCO 3.7.12 requires two ABGTS trains to be OPERABLE. This changes the CTS by moving the details that the ABGTS trains are "independent" from the CTS to the Bases.

The removal of these details related to system design from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS 3.7.12 retains the requirement that two ABGTS trains are required to be OPERABLE. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA02 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.7.8.a requires each auxiliary building gas treatment filter train be demonstrated to be OPERABLE at least once per 31 days on a STAGGERED TEST BASIS. CTS 4.9.12.a requires each auxiliary building gas treatment filter train to be demonstrated OPERABLE at least once per 31 days on a STAGGERED TEST BASIS. (See DOC L03 for the discussion regarding the deletion of the requirement to test "on a STAGGERED TEST BASIS.") CTS 4.7.8.d.2 requires verification the filter trains start on a Containment Phase A Isolation test signal at least once per 18 months. CTS 4.7.8.d.3 requires verification that the system maintains the spent fuel storage area and the ESF pump rooms at a pressure equal to or more negative than minus 1/4 inch water gage relative to the outside atmosphere while maintaining a total system flow of 9000 cfm plus or minus 10% at least once per 18 months. (See DOC L05 for the discussion of the change in frequency from 18 months to 18 months on a STAGGERED TEST BASIS.) CTS 4.7.12.d.3 requires verification that the filter train starts on a high radiation signal from the fuel pool radiation monitoring system at least once per 18 months. ITS SR 3.7.12.1, SR 3.7.12.3, and SR 3.7.12.4 require similar Surveillances and specify the periodic Frequencies as, "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for these SRs and the associated Bases to the Surveillance Frequency Control Program.

The removal of these details related to Surveillance Requirement Frequencies 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 existing Surveillance Frequencies are removed from Technical Specifications and placed under licensee control pursuant to the methodology described in NEI 04-10. A new program (Surveillance Frequency Control Program) is being added to the Administrative Controls section of the Technical Specifications describing the control of Surveillance Frequencies. The surveillance test requirements remain

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in the Technical Specifications. The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. This change is designated as a less restrictive removal of detail change, because the Surveillance Frequencies are being removed from the Technical Specifications.

LA03 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.7.8.a requires each auxiliary building gas treatment filter train to be demonstrated OPERABLE by initiating, from the control room, flow through the HEPA filter and charcoal adsorber train and verifying that the system operated for at least 10 hours with the heaters on. CTS 4.9.12.a MHC006 requires each auxiliary building gas treatment filter train to be demonstrated OPERABLE by initiating, from the control room, flow through the HEPA filter and charcoal adsorber train and verifying that the system operated for at least 10 train hours with the heaters on. ITS SR 3.7.12.1 requires operation of each ABGTS for greater than or equal to 15 continuous minutes with the heaters on. This changes the CTS by moving the statement that the test is initiated from the control room and with flows through the HEPA filter and charcoal adsorber train to the Bases. (See DOC L04 for the discussion related to the reduction in the amount of time each ABGTS train is required to be operated.)

The removal of these details for performing a Surveillance Requirement from the Technical Specifications is acceptable because this type of information is not necessary to be includes in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements to operate each ABGTS train with the heaters on. Also, this change is acceptable because these types of 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 Specifications are being removed from the Technical Specifications.

LA04 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 4.7.8.d.2 requires verification that the filter trains start on a Containment Phase A Isolation test signal. CTS 4.9.12.d.2 requires verification that the filter train starts on a high radiation signal from the fuel pool radiation monitoring system. ITS 3.7.12.3 requires verification that each ABGTS train actuates on an actual or simulated actuation signal. This changes the CTS by moving the details of the test signal to the Bases. (See DOC L07 for a discussion of specifying that the actuation signal may be either actual or simulated.)

The purpose of CTS 4.7.8.d.2 and 4.9.12.d.2 is to verify that each ABGTS train operates correctly upon a receipt of an actuation signal. The removal of the details regarding the actuation signal used, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide

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DISCUSSION OF CHANGES
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

MHC006

adequate protection of public health and safety. ~~ITS 3.7.12 retains the requirement that two ABGTS trains are required to be OPERABLE.~~ Also, this change is acceptable because these types of 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 information relating to system design is being removed from the Technical Specifications.

LA05 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.7.8.d.3 requires verification that the ABGTS system maintains the spent fuel storage area and the ESF pump rooms at a pressure equal to or more negative than minus 1/4 inch water gage relative to the outside atmosphere while maintaining a total system flow of 9000 cfm plus or minus 10%. ITS 3.7.12.4 requires verification that the ABGTS train can maintain a pressure less ~~greater~~ than or equal to -0.25 inches water gauge with respect to atmospheric pressure at a flow rate greater than or equal to 8,100 and less than or equal to 9,900 cfm. This changes the CTS by moving the statement that the system maintains the spent fuel storage area and the ESF pump rooms at the specified pressure to the Bases.

MHC006

The removal of these details for performing a Surveillance Requirement 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 requirements to verify the ABGTS train can maintain a pressure less ~~greater~~ than or equal to -0.25 inches water gauge with respect to atmospheric pressure at a flow rate of greater than or equal to 8,100 and less than or equal to 9,900 cfm. 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 Specifications are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 Not Used MHC005 ~~*(Category 1 – Relaxation of LCO Requirements)* CTS 3.7.8 requires two ABGTS trains to be OPERABLE. ITS LCO 3.7.12 includes the same ABGTS OPERABILITY requirements but is modified by Note 1, which states "The Auxiliary Building Secondary Containment Enclosure (ABSCE) boundary may be opened intermittently under administrative control." This changes the CTS by allowing the ABSCE boundary to be opened under administrative controls when the ABGTS is required to be OPERABLE.~~

~~The purpose of CTS 3.7.8 is to maintain the air pressure in the auxiliary building below atmospheric, reduce the concentration of nuclides in air releases from the Auxiliary Building Secondary Containment Enclosure (ABSCE), and to minimize the spread of airborne radioactivity within the Auxiliary Building following an~~

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DISCUSSION OF CHANGES
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

~~accidental release in the fuel handling areas. ITS LCO 3.7.12 Note 1 will allow the ABSCE boundary to be opened under administrative controls when the ABGTS is required to be OPERABLE. This change is acceptable because the administrative controls are described in the Bases. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for auxiliary building isolation is indicated. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.~~ MHC005

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.7.8 ACTION contains compensatory actions to take when one auxiliary building gas treatment filter train is inoperable in MODES 1, 2, 3 and 4. CTS 3.7.8 does not contain compensatory actions to take when both auxiliary building gas treatment filter trains are inoperable. Therefore, CTS 3.0.3 would be entered for two auxiliary building gas treatment filter trains inoperable. CTS 3.0.3 requires action to be initiated within one hour to be in HOT STANDBY (equivalent to ITS MODE 3) in the following 6 hours, to be in HOT SHUTDOWN (equivalent to ITS MODE 4) in the following 6 hours, and to be in COLD SHUTDOWN (equivalent to ITS MODE 5) in the subsequent ~~36~~ 24 hours. ITS 3.7.12 ACTIONS contain a Note stating LCO 3.0.3 is not applicable. ITS 3.7.12 ACTION B states with two ABGTS trains inoperable due to an inoperable Auxiliary Building Secondary Containment Enclosure (ABSCE) boundary in MODE 1, 2, 3, or 4 to restore the auxiliary building boundary to OPERABLE status within 24 hours. Additionally, ITS 3.7.12 ACTION C states, in part, when two ABGTS trains are inoperable for reasons other than Condition B (i.e., an inoperable ABSCE boundary) or if the Required Action and associated Completion Time of Condition B is not met in MODE 1, 2, 3, or 4 to be in MODE 3 within 6 hours and to be in MODE 5 within 36 hours. This changes the CTS by not requiring entry into LCO 3.0.3 when two ABGTS trains are inoperable in MODE 1, 2, 3, or 4, and adds compensatory actions to take when two ABGTS trains are inoperable in MODE 1, 2, 3, or 4. MHC006

ITS 3.7.12 is applicable during movement of ~~recently~~ irradiated fuel assemblies or with fuel stored in the spent fuel pool in addition to MODE 1, 2, 3, or 4. Since the ~~movement of recently irradiated fuel assemblies~~ additional MODES can occur in MODES 1, 2, 3, and 4, it is necessary to add an ACTIONS Note stating that LCO 3.0.3 is not applicable because the movement or storage of fuel is independent of reactor operations. This change is acceptable because ITS 3.7.12 ACTIONS B and C will provide compensatory measures to take when two trains of ABGTS are inoperable in MODE 1, 2, 3, or 4. ITS 3.7.12 ACTION B applies when two ABGTS trains are inoperable because of an inoperable ABSCE boundary in MODE 1, 2, 3, or 4 and provides 24 hours to restore the inoperable auxiliary building boundary to OPERABLE status. During these 24 hours, compensatory measures will be taken to protect plant personnel from potential hazards, and preplanned compensatory measures will be in place to address both the intentional and unintentional inoperability of the ABSCE boundary. Furthermore, the 24 hour Completion Time is based on the low probability of a DBA occurring during this time period and the compensatory measures that will be taken. ~~ITS 3.7.12 ACTION C applies when the Required Action and associated Completion Time of Condition B is not met or when two ABGTS trains~~ MHC006

DISCUSSION OF CHANGES
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

~~are in operable for reasons other than Condition B in MODE 1, 2, 3, or 4. ITS 3.7.12 ACTION C provides 6 hours to be in MODE 3 and 36 hours to be in MODE 5. This change is acceptable because ITS continues to require the unit to be placed outside of the MODE of Applicability when two ABGTS trains are inoperable in MODE 1, 2, 3, or 4, for reasons other than an inoperable ABSCE boundary, or if one ABGTS train is not restored to an OPERABLE status within 24 hours.~~ This change is designated as less restrictive because the less stringent requirements are being applied in the ITS than were applied in the CTS. MHC006

L03 *(Category 7 – Relaxation of Surveillance Frequency)* CTS 4.7.8.a and 4.9.12.a require the operation of each ABGTS train every 31 days on a STAGGERED TEST BASIS. ITS SR 3.7.12.1 requires the operation of each ABGTS train every 31 days. This changes the CTS by deleting the requirement to perform the verification on a STAGGERED TEST BASIS. (See DOC LA02 for the discussion on moving the 31 day Frequency to the Surveillance Frequency Control Program.)

The purpose of CTS 4.7.8.b and 4.9.12.a is to ensure that ABGTS is OPERABLE. The CTS 1.35 STAGGERED TEST BASIS definition, defines a testing schedule for n systems, subsystems, or trains by dividing the specified test interval into n equal subintervals, with the testing of one system, subsystem, or train occurring at the beginning of each subinterval. In other words, a Surveillance Requirement to verify the OPERABILITY of each train in a two train system at a Frequency of 31 days on a STAGGERED TEST BASIS would result in each train being verified OPERABLE every 31 days, with one train being verified in alternating 15.5 day subintervals. Removal of the STAGGERED TEST BASIS scheduling requirement does not change the requirement to verify the OPERABILITY of each train every 31 days, but rather removes the requirement to schedule testing every 15.5 days. The new Surveillance Frequency will not change the testing Frequency of each train. The intent of the CTS staggered testing requirement is to evenly distribute testing of each ABGTS train across the system. However, as each ABGTS train is independent, no increase in reliability or safety is achieved by evenly staggering the testing subintervals. This change is acceptable, because removal of the staggered testing requirement will increase operational and scheduling flexibility without decreasing safety or system reliability. This change is designated as less restrictive, because the intervals between performances of the Surveillances for the ABGTS trains can be larger or smaller under the ITS than under the CTS.

L04 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* CTS 4.7.8.a and CTS 4.9.12.a require~~s~~ the periodic operation of each ABGTS train for at least 10 hours with the heaters on. ITS SR 3.7.12.1 requires the periodic operation of each ABGTS train for at least 15 continuous minutes with the heaters on. This changes the CTS by reducing the amount of time each ABGTS train is required to be operated. MHC006

The purpose of CTS 4.7.8.b and CTS 4.9.12.a is to periodically verify that each train of ABGTS can operate properly. The requirement to operate each train for at least 10 hours per month with the heaters on in order to reduce the buildup of moisture on the adsorbers and HEPA filters was derived from the guidance provided in Regulatory Guide (RG) 1.52, "Design, Testing, and Maintenance Criteria for Post

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DISCUSSION OF CHANGES
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," Revision 2, Regulatory Position 4.d. However, this was changed in RG 1.52, Revision 3. RG 1.52, Revision 3, Regulatory Position 6.1 states, "Each ESF atmosphere cleanup train should be operated continuously for at least 15 minutes each month, with the heaters on (if so equipped), to justify the operability of the system and all its components." The Ventilation Filter Testing Program (VFTP) also requires that a laboratory test of a sample of the charcoal adsorber used in each of the Engineered Safety Features (ESF) systems be tested in accordance with ASTM D3803-1989. Generic Letter 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, informed licensees that the use of any standard other than ASTM D3803-1989 to test the charcoal sample may result in an overestimation of the capability of the charcoal to adsorb radioiodine. As a result, TVA requested license amendments to the Sequoyah Nuclear Plant (SQN) Unit 1 and Unit 2 Technical Specifications to revise the required filter testing to be in accordance with ASTM D3803-1989. The NRC approved the SQN Unit 1 and Unit 2 license amendments on November 2, 2000 (ADAMS Accession Number ML003766942). This change is acceptable because the ASTM D3803-1989 Standard no longer requires operation for 10 hours utilizing the heaters. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L05 *(Category 7 – Relaxation of Surveillance Frequency)* CTS 4.7.8.d.3 requires verification that the system maintains the spent fuel storage area and the ESF pump rooms at a pressure equal to or more negative than minus 1/4 inch water gage relative to the outside atmosphere while maintaining a total system flow of 9000 cfm ± 10% at least once per 18 months. ITS SR 3.7.12.4 requires a similar test; however, it is required to be performed using one ABGTS train every 18 months "on a STAGGERED TEST BASIS." This changes the CTS by requiring the test be performed using each ABGTS train at least once per 36 months.

The purpose of CTS 4.7.8.d.3 is to ensure the spent fuel storage area and the ESF pump rooms are capable of maintaining a negative pressure boundary. This change is acceptable because the new Surveillance provides an acceptable level of reliability. This proposed Surveillance Frequency will continue to require one ABGTS train to be tested every 18 months. This will ensure that the ABGTS can maintain a negative pressure boundary in the spent fuel storage area and the ESF pump rooms. The spent fuel storage area and the ESF pump rooms negative pressure boundary can be maintained with either ABGTS train. ITS SR 3.7.12.3 requires performance of a test to ensure that the ABGTS train actuates on an actual or simulated actuation signal. Therefore, each subsystem will continue to be tested to ensure it can be automatically aligned to the correct mode of operation; however, the verification that the spent fuel storage area and the ESF pump rooms are maintained at a negative pressure will only be required with one train in operation per 18 months. This change is designated as less restrictive because the Surveillance will be required to be performed less often in ITS than it is performed in the CTS.

DISCUSSION OF CHANGES
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

MHC006

Not Used

L06 *(Category 2 – Relaxation of Applicability)* CTS 3.9.12 states that the requirements of the ABGTS are applicable "Whenever irradiated fuel is in the storage pool." CTS 3.9.12 ACTION a requires when no ABGTS is OPERABLE, suspend all operations involving movement of fuel within the spent fuel pit or crane operation with loads over the spent fuel pit until at least one ABGTS train is restored to an OPERABLE stratus. ITS 3.7.12 states, in part, that the requirements of the ABGTS are applicable "During movement of recently irradiated fuel assemblies in the auxiliary building." ITS 3.7.12 ACTION D requires when two ABGTS trains are inoperable during movement of recently irradiated fuel assemblies in the auxiliary building immediately to suspend movement of recently irradiated fuel assemblies in the auxiliary building. This changes the CTS by restricting the ABGTS Specification to only when there is a potential for a fuel handling accident (i.e., during movement of recently irradiated fuel assemblies in the auxiliary building).

The purpose of CTS 3.9.12 is to ensure the ABGTS is OPERABLE to mitigate the consequences of a fuel handling accident in the auxiliary building. This change is acceptable because the requirements continue to ensure that the structures, system and components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. The Sequoyah Nuclear Plant (SQN) fuel handling analysis for the auxiliary building has been analyzed using the methodology from Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." The SQN fuel handling analysis assumes, in part, that the accident occurs within 100 hours after a plant shutdown, radioactive decay during the interval between shutdown and placement of the first spent fuel assembly into the spent fuel pool is taken into account, and a single fuel assembly is damaged. Additionally, a fuel handling accident is only assumed to occur when a recently irradiated fuel assembly is being moved. Therefore, the ITS imposes the controls on the ABGTS during movement of recently irradiated fuel assemblies in the auxiliary building. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L07 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* CTS 4.7.8.d.2 requires verification that the filter trains start on a Containment Phase A Isolation test signal. CTS 4.9.12.d.2 requires verification that the filter train starts on a high radiation signal from the fuel pool radiation monitoring system. ITS SR 3.7.12.3 requires verification that each ABGTS train actuates on an actual or simulated actuation signal. This changes the CTS by specifying that the actuation signal may be either actual or simulated. (See DOC LA04 for a discussion of moving the details of the test signal to the Bases.)

The purpose of CTS 4.7.8.d.2 and 4.9.12.d.2 is to verify that each ABGTS train operates correctly upon a receipt of an actuation signal. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its safety function. Equipment cannot discriminate between an "actual" or "simulated" signal; therefore, the results of testing are unaffected by the type of signal used to initiate the test.

DISCUSSION OF CHANGES
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

MHC003

L08 *(Category 4 - Relaxation of Required Action)* CTS 3.9.12 ACTION a contains compensatory actions to, in part, suspend crane operation with loads over the spent fuel pit until at least one ABGTS train is restored to OPERABLE status. ITS 3.7.12 ACTION E contains a Note stating that crane operations using the main hoist on the Auxiliary Building crane may continue. This changes CTS by allowing operations with loads over the spent fuel pool with the main hoist on the auxiliary building crane to continue without having one ABGTS train OPERABLE.

ITS 3.7.12 is applicable anytime fuel is stored in the spent fuel pool ~~to ensure that the assumptions made for the fuel handling accident are maintained~~. With no OPERABLE ABGTS train, activities involving loads over the spent fuel pool are prohibited such that a load cannot be dropped onto the fuel stored in the storage pool. The Note allows loads using the main hoist on the auxiliary building crane to be used over the spent fuel pool because the main hoist is a single failure proof crane meeting the requirements of NUREG-0554 and NUREG-0612. Dropping loads from a single failure proof crane are not considered creditable accidents, therefore crane operation with the main hoist may continue with no ABGTS train OPERABLE. This change is designated as less restrictive because the less stringent requirements are being applied to ITS than were applied to the CTS.

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

CTS

ABGTS ~~FBACS~~ 1
3.7.~~13~~ 12

3.7 PLANT SYSTEMS

3.7.~~13~~ 12 Auxiliary Building Gas Treatment ~~Fuel Building Air Cleanup~~ System ABGTS ~~(FBACS)~~ 1

3.9.4.b.2
3.7.8
3.9.12

LCO 3.7.~~13~~ 12 Two ABGTS ~~FBACS~~ trains shall be OPERABLE. 1

MHC005

~~Auxiliary Building Secondary Containment Enclosure (ABSCE)~~

~~DOC L01~~
~~3.9.12~~
3.9.4.b.2
MHC005

-----NOTE S-----
~~1.~~ ~~The fuel building boundary may be opened intermittently under administrative control.~~ 3 ~~2~~ 3

INSERT 1

MHC006

3.7.8 Applicability, 3.9.12 Applicability

APPLICABILITY: ~~[~~MODES 1, 2, 3, and 4, ~~]~~ 4 3
During movement of ~~[recently]~~ irradiated fuel assemblies ~~in the~~ ~~fuel~~ ~~auxiliary~~ building.
,
With fuel stored in the spent fuel pool. 7

ACTIONS

DOC L02, 3.9.12 ACTION b

-----NOTE-----
LCO 3.0.3 is not applicable.

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
3.7.8 ACTION	A. One ABGTS ~~FBACS~~ train inoperable In MODE 1, 2, 3, or 4.	A.1 Restore ABGTS ~~FBACS~~ train to OPERABLE status.	7 days	1 2
DOC L02	B. Two ABGTS ~~FBACS~~ trains inoperable due to inoperable ABSCE ~~fuel building~~ boundary in MODE 1, 2, 3, or 4.	B.1 Restore ABSCE ~~fuel building~~ boundary to OPERABLE status.	24 hours	1 3

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2

INSERT 1

MHC005

3.9.12
3.9.4.b.2 ~~2.~~ Only one ABGTS train is required to be OPERABLE during movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~.

or with fuel stored in the spent fuel pool.

7

MHC006

CTS

ABGTS ~~FBACS~~
3.7.~~13~~ 12
1

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
3.7.8 ACTION ~~DOC L02~~ MHC006	C. ~~[~~Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4. OR Two ABGTS ~~FBACS~~ trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours ~~]~~	4 4 1
MHC006	~~D. Required Action and associated Completion Time [of Condition A] not met during movement of [recently] irradiated fuel assemblies in the fuel building.~~	~~D.1 Place OPERABLE FBACS train in operation.~~ ~~OR~~ ~~D.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.~~	~~Immediately~~ ~~Immediately~~	2
3.9.12 ACTION a MHC006	~~E~~ D. One required ~~Two FBACS~~ trains ABGTS inoperable during movement of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel building~~. ~~auxiliary~~	~~E~~ D.1 Suspend movement of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel building~~. ~~auxiliary~~	Immediately	2 1 4 4 3 3
3.9.12 ACTION a L08	E. One required ABGTS train inoperable with fuel stored in the spent fuel pool.	E.1 ~~-------------NOTE------------- Crane operations using the main hoist on the Auxiliary Building crane may continue. -------------------------------~~ Suspend all crane operations with loads over the spent fuel pool.	Immediately	7 MHC003

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SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
4.7.8.a, 4.9.12.a	SR 3.7.~~13~~ 12 .1	Operate each ~~FBACS~~ ABGTS train for [≥ ~~10~~ 15 continuous ~~hours~~ minutes [with the heaters operating ~~or (for systems without heaters) ≥ 15 minutes]~~.	~~[31 days~~ 1 4 TSTF-522 ~~OR~~ In accordance with the Surveillance Frequency Control Program] 5
DOC A02	SR 3.7.~~13~~ 12 .2	Perform required ~~FBACS~~ ABGTS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP] 1 3
4.7.8.d.2, 4.9.12.d.2	SR 3.7.~~13~~ 12 .3	INSERT 2 [Verify each ~~FBACS~~ ABGTS train actuates on an actual or simulated actuation signal.	~~[[18] months~~ 6 1 4 ~~OR~~ In accordance with the Surveillance Frequency Control Program]] 5 4
4.7.8.d.3, DOC M01	SR 3.7.~~13~~ 12 .4	Verify ~~one FBACS~~ each ABGTS train can maintain a pressure ≤ ~~[-0.125]~~ - 0.25 inches water gauge with respect to atmospheric pressure during the [post accident] mode of operation at a flow rate ≥ 8,100 and ≤ ~~[20,000]~~ 9,900 cfm.	~~[[18] months on a STAGGERED TEST BASIS~~ 1 4 ~~OR~~ In accordance with the Surveillance Frequency Control Program] 5

CTS

3.7.12

6

INSERT 2

DOC A03

MHC006

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

1. Actual or simulated actuation on Containment Phase A isolation signal only required to be met in MODES 1, 2, 3 and 4.

2. Actual or simulated actuation on fuel storage pool area high radiation signal only required to be met during movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~.

----

or with fuel stored in the spent fuel pool.

CTS

ABGTS ~~FBACS~~
3.7.~~13~~ 12

1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.7.13.5~~	~~[Verify each FBACS filter bypass damper can be closed.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~

4

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CTS

ABGTS ~~FBACS~~ 1
3.7.~~13~~ 12

3.7 PLANT SYSTEMS

3.7.~~13~~ 12 Auxiliary Building Gas Treatment ~~Fuel Building Air Cleanup~~ System ABGTS ~~(FBACS)~~ 1

3.9.4.b.2
3.7.8
3.9.12

LCO 3.7.~~13~~ 12 Two ABGTS ~~FBACS~~ trains shall be OPERABLE. 1

MHC005

~~DOC L01~~
~~3.9.12~~
3.9.4.b.2 MHC005

S

--NOTE-- 3

~~1.~~ ~~The fuel building boundary may be opened intermittently under administrative control.~~ Auxiliary Building Secondary Containment Enclosure (ABSCE) ~~2~~ 3

INSERT 1

MHC006

3.7.8 Applicability, 3.9.12 Applicability

APPLICABILITY: ~~[~~MODES 1, 2, 3, and 4, ~~]~~ 4 3
During movement of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel~~ auxiliary ~~building~~.

,

With fuel stored in the spent fuel pool. 7

ACTIONS

--NOTE--

DOC L02, 3.9.12 ACTION b

LCO 3.0.3 is not applicable.

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
3.7.8 ACTION	A. One ABGTS ~~FBACS~~ train inoperable In MODE 1, 2, 3, or 4.	A.1 Restore ABGTS ~~FBACS~~ train to OPERABLE status.	7 days	1 2
DOC L02	B. Two ABGTS ~~FBACS~~ trains inoperable due to inoperable ABSCE ~~fuel building~~ boundary ~~-~~in MODE 1, 2, 3, or 4.	B.1 Restore ABSCE ~~fuel building~~ boundary to OPERABLE status.	24 hours	1 3

CTS 3.7.12

2

INSERT 1

MHC005

3.9.12
3.9.4.b.2 ~~2.~~ Only one ABGTS train is required to be OPERABLE during movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~.

or with fuel stored in the spent fuel pool.

7

MHC006

CTS

ABGTS ~~FBACS~~ 1
3.7.~~13~~ 12

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
3.7.8 ACTION ~~DOC L02~~ MHC006	C. ~~[~~ Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4. OR Two ~~FBACS~~ ABGTS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours ~~]~~	4 4 1
MHC006	~~D. Required Action and associated Completion Time [of Condition A] not met during movement of [recently] irradiated fuel assemblies in the fuel building.~~	~~D.1 Place OPERABLE FBACS train in operation.~~ ~~OR~~ ~~D.2 Suspend movement of [recently] irradiated fuel assemblies in the fuel building.~~	~~Immediately~~ ~~Immediately~~	2
3.9.12 ACTION a MHC006	~~E~~ D. ~~Two FBACS~~ One required ABGTS trains inoperable during movement of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel building~~ ~~auxiliary~~.	~~E~~ D.1 Suspend movement of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel building~~ ~~auxiliary~~.	Immediately	2 1 4 4 3 3
3.9.12 ACTION a L08	E. One required ABGTS train inoperable with fuel stored in the spent fuel pool.	E.1 ~~-----NOTE----- Crane operations using the main hoist on the Auxiliary Building crane may continue. -----~~ Suspend all crane operations with loads over the spent fuel pool.	Immediately	7 MHC003

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CTS

ABGTS ~~FBACS~~ 1
3.7.~~13~~ 12

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
4.7.8.a, 4.9.12.a	SR 3.7.~~13~~12.1	Operate each ~~FBACS~~ ABGTS train for [≥ ~~10~~ 15 continuous ~~hours~~ minutes [with the heaters operating ~~or (for systems without heaters) ≥ 15 minutes~~].	[~~31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	1 4 5 TSTF-522
DOC A02	SR 3.7.~~13~~12.2	Perform required ~~FBACS~~ ABGTS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]	1 3
4.7.8.d.2, 4.9.12.d.2	SR 3.7.~~13~~12.3	INSERT 2 [Verify each ~~FBACS~~ ABGTS train actuates on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]]	6 1 4 5 4
4.7.8.d.3, DOC M01	SR 3.7.~~13~~12.4	Verify ~~one FBACS~~ each ABGTS train can maintain a pressure ≤ ~~[-0.125]~~ - 0.25 inches water gauge with respect to atmospheric pressure during the [post accident] mode of operation at a flow rate ≥ 8,100 and ≤ ~~[20,000]~~ 9,900 cfm.	~~[[18] months on a STAGGERED TEST BASIS~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	1 4 5

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6

INSERT 2

DOC A03

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

1. Actual or simulated actuation on Containment Phase A isolation signal only required to be met in MODES 1, 2, 3 and 4.

2. Actual or simulated actuation on fuel storage pool area high radiation signal only required to be met during movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~. or with fuel stored in the spent fuel pool.

MHC006

1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.7.13.5~~	~~[Verify each FBACS filter bypass damper can be closed.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~

4

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

1. Sequoyah Nuclear Plant (SQN) design does not include the ISTS 3.7.12, "Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)." Therefore, ISTS 3.7.13, "Fuel Building Air Cleanup System (FBACS)" has been renumbered as ITS 3.7.12. Additionally, SQN refers to the Fuel Building Air Cleanup System (FBACS) as the Auxiliary Building Gas Treatment System (ABGTS).

2. ISTS 3.7.13 ACTION A has been revised to only apply in MODES 1, 2, 3, or 4 and ACTION D has been deleted, as the SQN current licensing basis only credits one train of ABGTS to mitigate a fuel handling accident involving ~~the movement of recently~~ irradiated fuel assemblies ~~in the auxiliary building~~. Therefore, the only applicable ACTION for the required ABGTS train being inoperable during the movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~ is ISTS 3.7.13 ACTION E (ITS 3.7.12 ACTION D). MHC003

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.

4. 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.

5. ISTS SR 3.7.13.1, SR 3.7.13.3 and SR 3.7.13.4 (ITS SR 3.7.12.1, SR 3.7.12.3 and SR 3.7.12.4, respectively) provides two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

6. Changes made for consistency with the Applicability of the ABGTS actuation functions provided in ITS 3.3.8.

MHC006

7. ISTS 3.7.13 Mode of Applicability does not include, "With fuel stored in the spent fuel pool." CTS 3.9.12 Applicability specifies "Whenever irradiated fuel is in the storage pool." Therefore, the Applicability of ISTS 3.7.13 (ITS 3.7.12) has been revised to include "With fuel stored in the spent fuel pool." Additionally, ISTS 3.7.13 does not require the suspension of crane operations over irradiated fuel when a train of ABGTS is inoperable. CTS 3.9.12 ACTION a. requires in part, suspending crane operation with loads over the spent fuel pit. Therefore, ITS 3.7.12 ACTION E.1 has been added to suspend all crane operation with loads over the spent fuel pool in the event that there is no OPERABLE ABGTS. ~~A NOTE has been added to the Required Actions of ITS 3.7.12 Condition E to allow crane operation using the main hoist on the Auxiliary Building crane. The main hoist on the Auxiliary Building crane is a single failure proof crane meeting the requirements of NUREG-0554 and NUREG-0612.~~

MHC003

MHC003

Crane operation would include any cranes and/or hoists utilized by the fuel handling equipment described in UFSAR Section 9.1.4.2.

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

B 3.7 PLANT SYSTEMS

B 3.7.~~13~~ 12 ~~Fuel Building Air Cleanup~~ Auxiliary Building Gas Treatment System (~~FBACS~~ ABGTS)

BASES

BACKGROUND

The ~~FBACS~~ ABGTS filters airborne radioactive particulates from the area of the fuel pool following a fuel handling accident or loss of coolant accident (LOCA). ~~The FBACS, in conjunction with other normally operating systems, also provides environmental control of temperature and humidity in the fuel pool area.~~

The ~~FBACS~~ ABGTS consists of two independent and redundant trains. Each train consists of a heater, a prefilter ~~or demister~~, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, and instrumentation also form part of the system~~, as well as demisters, functioning to reduce the relative humidity of the airstream~~. ~~A second bank of HEPA filters follows the adsorber section to collect carbon fines and provide backup in case the main HEPA filter bank fails. The downstream HEPA filter is not credited in the analysis, but serves to collect charcoal fines, and to back up the upstream HEPA filter should it develop a leak.~~ The system initiates filtered ventilation of the ~~fuel handling~~ auxiliary building following receipt of a high radiation signal. INSERT 1

The ~~FBACS~~ ABGTS is a standby system~~, parts of which may also be operated during normal plant operations~~. Upon receipt of the actuating signal, normal air discharge~~s~~ from ~~the building,~~ the ~~fuel handling~~ auxiliary building is isolated~~,~~ and the stream of ventilation air discharges through the system filter trains. ~~The prefilters or demisters remove any large particles in the air, and any entrained water droplets present, to prevent excessive loading of the HEPA filters and charcoal adsorbers.~~

MHC006

The ~~FBACS~~ ABGTS is discussed in the U FSAR, Sections ~~[~~6.~~5~~ 2.3.1~~], [9.4.5]~~, 15.5.3, 5.6 and ~~[~~15.~~7.4~~~~]~~ (Refs. 1~~, 2,~~ and ~~3~~ 2, respectively) ~~because it may be used for normal, as well as~~ post accident~~,~~ ~~atmospheric cleanup functions~~. STET

APPLICABLE SAFETY ANALYSES

The ~~FBACS~~ ABGTS design basis is established by the consequences of ~~the limiting~~ Design Basis Accident~~s~~ (DBA~~s~~)~~, which is a fuel handling accident [involving handling recently irradiated fuel]. The analysis of the fuel handling accident, given in Reference 3, assumes that all fuel rods in an assembly are damaged.~~ a LOCA during MODES 1, 2, 3, and 4, and a fuel handling accident during operations involving irradiated fuel assemblies. The analysis of the LOCA, given in Reference 2, assumes that radioactive materials leaked from the Emergency Core Cooling System (ECCS) are filtered and adsorbed by the ~~FBACS~~ ABGTS. ~~The DBA analysis of the fuel handling accident assumes that only one train of the FBACS is functional due to a single failure that disables the other train. The accident analysis accounts for the reduction in airborne radioactive~~ The analysis of the fuel handling accident, given in Reference 3, assumes that the auxiliary building secondary containment enclosure (ABSCE) boundary is capable of being established to ensure the releases from the auxiliary and containment buildings are consistent with the dose consequence analysis, no credit is taken for filtration by the ABGTS.

2

INSERT 1

from the fuel handling area radiation monitors, a high radiation signal from the train-specific Auxiliary Building exhaust vent monitor, a Phase A containment isolation signal from either reactor, or a high temperature signal from the Auxiliary Building air intakes

MHC006

. During plant operations with the containment open to the auxiliary building, the Auxiliary Building Secondary Containment Enclosure (ABSCE) boundary is extended to include the area inside the containment building and the shield building.

BASES

APPLICABLE SAFETY ANALYSES (continued)

MHC006

~~material provided by the one remaining train of this filtration system.~~ The amount of fission products available for release from the ~~fuel handling~~ auxiliary building is determined for a fuel handling accident and for a LOCA. ~~[Due to radioactive decay, FBACS~~ ~~ABGTS~~ ~~is only required to isolate during fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days~~ ~~100 hours~~~~).]~~ These assumptions and the analysis follow the guidance provided in Regulatory Guide 1.4 (Ref. 4) for a LOCA and Regulatory Guide ~~1.25~~ 1.183 (Ref. ~~4~~ 5) for the fuel handling accident. 2 1 3 1 3 2

The ~~FBACS~~ ABGTS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

Two independent and redundant trains of the ~~FBACS~~ ABGTS are required to be OPERABLE to ensure that at least one train is available, assuming a single failure that disables the other train, coincident with a loss of offsite power. Total system failure could result in the atmospheric release from the ~~fuel handling~~ auxiliary building exceeding the 10 CFR 100 (Ref. ~~5~~ 4 6) limits in the event of a ~~fuel handling accident [involving handling recently irradiated fuel]~~ LOCA. INSERT 2 1 1 2 2

The ~~FBACS~~ ABGTS is considered OPERABLE when the individual components necessary to control exposure in the ~~fuel handling~~ auxiliary building are OPERABLE in both trains. An ~~FBACS~~ ABGTS train is considered OPERABLE when its associated: 1

a. Fan is OPERABLE,

b. HEPA filter and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration function, and

c. Heater, ~~demister,~~ ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained. 1

MHC005

a

The LCO is modified by ~~a Note allowing~~ ~~two Notes. Note 1 allows~~ the ~~fuel building~~ ~~Auxiliary Building Secondary Containment Enclosure (ABSCE)~~ boundary to be ~~opened intermittently under administrative controls. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for fuel~~ ~~auxiliary~~ ~~building isolation is indicated.~~ ~~1~~ 4 ~~1~~ 4

INSERT 3

2

INSERT 2

MHC006

One train of the ABGTS is required to be OPERABLE to mitigate the consequences of a fuel handling accident involving handling ~~recently~~ irradiated fuel to limit releases to the environment to within the 10 CFR 50.67 limits.

4

INSERT 3

MHC005

that

Note ~~2~~ specifies that only one ABGTS train is required to be OPERABLE during the movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~.

or with fuel stored in the spent fuel pool.

MHC006

With fuel stored in the spent fuel pool, one train of ABGTS is required to be OPERABLE to support mitigation of any potential fuel damage resulting from a load drop.

ABGTS ~~FBACS~~ 1
B 3.7.~~13~~ 12

to provide fission product removal associated with ECCS leaks due to a LOCA

MHC006

BASES

APPLICABILITY

In MODE 1, 2, 3, or 4, the ~~FBACS~~ ABGTS is required to be OPERABLE to provide fission product removal associated with ECCS leaks due to a LOCA and leakage from containment and annulus. 1

In MODE 5 or 6, the ~~FBACS~~ ABGTS is not required to be OPERABLE since the ECCS is not required to be OPERABLE. 1 2

one train of

During movement of ~~[recently]~~ irradiated fuel ~~in the~~ ~~fuel handling area~~ ~~auxiliary building~~, ~~the~~ ~~FBACS~~ ABGTS is required to be OPERABLE to alleviate the consequences of a fuel handling accident. 3 1 2

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily. 4

crane travel with loads over fuel stored in the spent fuel pool and

MHC006

storing or

or storage

A.1

With one ~~FBACS~~ ABGTS train inoperable, in MODE 1, 2, 3, or 4 action must be taken to restore OPERABLE status within 7 days. During this period, the remaining OPERABLE train is adequate to perform the ~~FBACS~~ ABGTS function. The 7 day Completion Time is based on the risk from an event occurring requiring the inoperable ~~FBACS~~ ABGTS train, and the remaining ~~FBACS~~ ABGTS train providing the required protection. 4 1

B.1

~~-----------------------------------REVIEWER'S NOTE------------------------~~
~~Adoption of Condition B is dependent on a commitment from the licensee to have guidance available describing compensatory measures to be taken in the event of an intentional and unintentional entry into Condition B.~~
~~--~~ 5

If the ~~fuel building~~ ABSCE boundary is inoperable in MODE 1, 2, 3, or 4, the ~~FBACS~~ ABGTS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE ~~fuel building~~ ABSCE boundary within 24 hours. During the period that the ~~fuel building~~ ABSCE boundary is inoperable, appropriate compensatory measures ~~[~~consistent with the intent, as 1 3

1

BASES

ACTIONS (continued)

applicable, of GDC 19, 60, 61, 63, 64 and 10 CFR Part 100~~]~~ should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the ~~fuel building~~ ABSCE boundary. 3 1

~~[~~ C.1 and C.2 3

In MODE 1, 2, 3, or 4, when Required Action A.1 or B.1 cannot be completed within the associated Completion Time, or when both ~~FBACS~~ ABGTS trains are inoperable for reasons other than an inoperable ~~fuel building~~ ABSCE boundary (i.e., Condition B), the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in MODE 3 within 6 hours, and in MODE 5 within 36 hours. The Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. ~~]~~ 1 3

MHC006

~~D.1 and D.2~~

~~When Required Action A.1 cannot be completed within the required Completion Time, during movement of [recently] irradiated fuel assemblies in the fuel building, the OPERABLE FBACS train must be started immediately or [recently] irradiated fuel movement suspended. This action ensures that the remaining train is OPERABLE, that no undetected failures preventing system operation will occur, and that any active failure will be readily detected.~~

~~If the system is not placed in operation, this action requires suspension of [recently] irradiated fuel movement, which precludes a fuel handling accident [involving handling recently irradiated fuel]. This does not preclude the movement of fuel assemblies to a safe position.~~ 4

BASES

ACTIONS (continued)

D ~~E~~.1 4

MHC006

When the required ~~two~~ train~~s~~ of ~~the FBACS are~~ ABGTS is inoperable during movement of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel building~~ auxiliary, action must be taken to place the unit in a condition in which the LCO does not apply. Action must be taken immediately to suspend movement of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel building~~ auxiliary. This does not preclude the movement of fuel to a safe position. 4 2 4 3 ~~1~~ 3 4 ~~1~~ 4

Insert 7

SURVEILLANCE REQUIREMENTS

SR 3.7.~~13~~ 12.1 1

Standby systems should be checked periodically to ensure that they function properly. As the environmental and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system.

INSERT 4 ~~Monthly heater operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥15 minutes to demonstrate the function of the system.] [The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available.~~ TSTF-522 6

~~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.~~
~~------~~] 5

[SR 3.7.~~13~~ 12.2 3

This SR verifies that the required ~~FBACS~~ ABGTS testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the [VFTP].] 2 3 3

TSTF-522

INSERT 4

Operation [with heaters on] for ≥ 15 continuous minutes demonstrates OPERABILITY of the system. Periodic operation ensures that [heater failure,] blockage, fan or motor failure, or excessive vibration can be detected for corrective action. 3 3

Operation will be demonstrated by initiating, from the control room, flow through the HEPA filter and charcoal adsorber train. 2

4 Insert 7

E.1

When the required train of ABGTS is inoperable with fuel stored in the spent fuel pool, action must be taken to prevent the possibility of a load drop over fuel stored in the spent fuel pool. Suspending all crane operation with loads over the spent fuel pool will eliminate the possibility of dropping a load onto fuel assemblies stored in the spent fuel pool. ~~The NOTE allows operation of the main hoist on the Auxiliary Building crane during this condition due to the main hoist meeting the requirements of NUREG-0554 and NUREG-0612 for a single failure proof crane.~~ MHC006 MHC003

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BASES

SURVEILLANCE REQUIREMENTS (continued)

[SR 3.7.~~13~~12.3

This SR verifies that each ~~FBACS~~ ABGTS train starts and operates on an actual or simulated actuation signal. INSERT 5 ~~[The [18] month Frequency is consistent with Reference 6.]~~

~~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.~~
~~-----]~~

SR 3.7.~~13~~12.4

This SR verifies the integrity of the ~~fuel~~ auxiliary building enclosure (i.e., spent fuel storage area and the ESF pump rooms). The ability of the ~~fuel~~ auxiliary building to maintain negative pressure with respect to potentially uncontaminated adjacent areas is periodically tested to verify proper function of the ~~FBACS~~ ABGTS. During the ~~[~~post accident~~]~~ mode of operation, the ~~FBACS~~ ABGTS is designed to maintain a slight negative pressure in the ~~fuel~~ auxiliary building, to prevent unfiltered LEAKAGE. The ~~FBACS~~ ABGTS is designed to maintain a pressure ≤ ~~[-0.125]~~ - 0.25 inches water gauge with respect to atmospheric pressure at a flow rate ~~of [20,000]~~ ≥ 8,100 and ≤ 9,900 cfm to the ~~fuel~~ auxiliary building. ~~[The Frequency of [18] months is consistent with the guidance provided in NUREG-0800, Section 6.5.1 (Ref. 7).~~

~~An [18] month Frequency (on a STAGGERED TEST BASIS) is consistent with Reference 6.~~

~~OR~~

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

MHC002

4 ~~6~~ **INSERT 5**

The SR is modified by two Notes that specify when verification of ABGTS actuation for each actuation signal is required to be met. ABGTS actuation on a Containment Phase A isolation signal is required to be met in MODES 1, 2, 3 and 4. ABGTS actuation on fuel storage pool area high radiation signal is required to be met during movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building.~~

MHC006

and with fuel stored in the spent fuel pool.

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.~~
~~---]~~

~~[SR 3.7.13.5~~

~~Operating the FBACS filter bypass damper is necessary to ensure that the system functions properly. The OPERABILITY of the FBACS filter bypass damper is verified if it can be closed. [An [18] month Frequency is consistent with Reference 6.~~

~~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. U FSAR, Section ~~[6.5.1]~~ 6.2.3.

~~2. FSAR, Section [9.4.5].~~

MHC006

2 ~~3~~. U FSAR, Section ~~[15.7.4]~~ 15.5.3.

5 3 ~~4~~. Regulatory Guide ~~1.25~~ 1.183.

6 4 ~~5~~. 10 CFR 100.

4 ~~6. Regulatory Guide 1.52, Rev. [2].~~ Regulatory Guide 1.4

3 ~~7. NUREG-0800, Section 6.5.1, Rev. 2, July 1981.~~ UFSAR, Section 15.5.6

B 3.7 PLANT SYSTEMS

B 3.7.~~13~~ 12 Auxiliary Building Gas Treatment ~~Fuel Building Air Cleanup~~ System (ABGTS ~~FBACS~~) 1

BASES

BACKGROUND

The ABGTS ~~FBACS~~ filters airborne radioactive particulates from the area of the fuel pool following a fuel handling accident or loss of coolant accident (LOCA). ~~The FBACS, in conjunction with other normally operating systems, also provides environmental control of temperature and humidity in the fuel pool area.~~ 1 2

The ABGTS ~~FBACS~~ consists of two independent and redundant trains. Each train consists of a heater, a prefilter ~~or demister~~, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, and instrumentation also form part of the system~~, as well as demisters, functioning to reduce the relative humidity of the airstream~~. ~~A second bank of HEPA filters follows the adsorber section to collect carbon fines and provide backup in case the main HEPA filter bank fails. The downstream HEPA filter is not credited in the analysis, but serves to collect charcoal fines, and to back up the upstream HEPA filter should it develop a leak.~~ The system initiates filtered ventilation of the auxiliary ~~fuel handling~~ building following receipt of a high radiation signal. INSERT 1 1 2 2 1

The ABGTS ~~FBACS~~ is a standby system~~, parts of which may also be operated during normal plant operations~~. Upon receipt of the actuating signal, normal air discharge~~s~~ from ~~the building,~~ the auxiliary ~~fuel handling~~ building is isolated~~,~~ and the stream of ventilation air discharges through the system filter trains. ~~The prefilters or demisters remove any large particles in the air, and any entrained water droplets present, to prevent excessive loading of the HEPA filters and charcoal adsorbers.~~ 1 2 1 2

MHC006

The ABGTS ~~FBACS~~ is discussed in ~~the~~ STET U FSAR, Sections ~~[~~6.~~5.1~~2.3~~], [9.4.5]~~, 15.5.3, and ~~[~~15.~~7.4~~5.6~~]~~ (Refs. 1~~, 2,~~ and ~~3~~ 2, respectively) ~~because it may be used for normal, as well as~~ and post accident~~,~~ atmospheric cleanup functions. 1 2 3

APPLICABLE SAFETY ANALYSES

The ABGTS ~~FBACS~~ design basis is established by the consequences of ~~the limiting~~ Design Basis Accident~~s~~ (DBA)s, ~~which is a fuel handling accident [involving handling recently irradiated fuel]. The analysis of the fuel handling accident, given in Reference 3, assumes that all fuel rods in an assembly are damaged.~~ a LOCA during MODES 1, 2, 3, and 4, and a fuel handling accident during operations involving irradiated fuel assemblies. The analysis of the LOCA, given in Reference 2, assumes that radioactive materials leaked from the Emergency Core Cooling System (ECCS) are filtered and adsorbed by the ABGTS ~~FBACS~~. ~~The DBA analysis of the fuel handling accident assumes that only one train of the FBACS is functional due to a single failure that disables the other train. The accident analysis accounts for the reduction in airborne radioactive~~ 1 3 2 1 2

The analysis of the fuel handling accident, given in Reference 3, assumes that the auxiliary building secondary containment enclosure (ABSCE) boundary is capable of being established to ensure the releases from the auxiliary and containment buildings are consistent with the dose consequence analysis, no credit is taken for filtration by the ABGTS.

2

INSERT 1

from the fuel handling area radiation monitors, a high radiation signal from the train-specific Auxiliary Building exhaust vent monitor, a Phase A containment isolation signal from either reactor, or a high temperature signal from the Auxiliary Building air intakes

. During plant operations with the containment open to the auxiliary building, the Auxiliary Building Secondary Containment Enclosure (ABSCE) boundary is extended to include the area inside the containment building and the shield building.

MHC006

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ABGTS ~~FBACS~~ 1
B 3.7.~~13~~ 12

BASES

APPLICABLE SAFETY ANALYSES (continued)

~~material provided by the one remaining train of this filtration system.~~ The amount of fission products available for release from the auxiliary ~~fuel handling~~ building is determined for a fuel handling accident and for a LOCA. ~~[Due to radioactive decay, FBACS~~ ~~ABGTS~~ ~~is only required to isolate during fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous~~ ~~100 hours~~ ~~[X] days).]~~ These assumptions and the analysis follow the guidance provided in Regulatory Guide 1.4 (Ref. 4) for a LOCA and Regulatory Guide ~~1.25~~ 1.183 (Ref. ~~4~~ ~~3~~ 5) for the fuel handling accident.

MHC006 2 1 3 ~~1~~ 3 2

The ABGTS ~~FBACS~~ satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO Two independent and redundant trains of the ABGTS ~~FBACS~~ are required to be OPERABLE to ensure that at least one train is available, assuming a single failure that disables the other train, coincident with a loss of offsite power. Total system failure could result in the atmospheric release from the auxiliary ~~fuel handling~~ building exceeding the 10 CFR 100 (Ref. ~~5~~ ~~4~~ 6) limits in the event of a LOCA ~~fuel handling accident [involving handling recently irradiated fuel]~~. INSERT 2

1 1 2 2

The ABGTS ~~FBACS~~ is considered OPERABLE when the individual components necessary to control exposure in the auxiliary ~~fuel handling~~ building are OPERABLE in both trains. An ABGTS ~~FBACS~~ train is considered OPERABLE when its associated: 1

a. Fan is OPERABLE,

b. HEPA filter and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration function, and

c. Heater, ~~demister,~~ ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained. 1

MHC005 a

~~The LCO is modified by a Note allowing the fuel building boundary to be opened intermittently under administrative controls. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for fuel building isolation is indicated.~~ ~~two Notes. Note 1 allows~~ ~~Auxiliary Building Secondary Containment Enclosure (ABSCE)~~ ~~auxiliary~~ ~~1~~ 4 ~~1~~ 4

INSERT 3

Enclosure 2, Volume 12, Rev. 1, Page 473 of 704

2

INSERT 2

MHC006

One train of the ABGTS is required to be OPERABLE to mitigate the consequences of a fuel handling accident involving handling ~~recently~~ irradiated fuel to limit releases to the environment to within the 10 CFR 50.67 limits.

4

INSERT 3

MHC005

that

Note ~~2~~ specifies that only one ABGTS train is required to be OPERABLE during the movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~.

or with fuel stored in the spent fuel pool.

MHC006

With fuel stored in the spent fuel pool, one train of ABGTS is required to be OPERABLE to support mitigation of any potential fuel damage resulting from a load drop.

to provide fission product removal associated with ECCS leaks due to a LOCA

BASES

APPLICABILITY

In MODE 1, 2, 3, or 4, the ABGTS ~~FBACS~~ is required to be OPERABLE to provide fission product removal associated with ECCS leaks due to a LOCA and leakage from containment and annulus. 1

MHC006

In MODE 5 or 6, the ABGTS ~~FBACS~~ is not required to be OPERABLE since the ECCS is not required to be OPERABLE. 1 2

one train of

During movement of ~~[recently]~~ irradiated fuel ~~in the~~ ~~auxiliary building~~ ~~fuel handling area~~, the ABGTS ~~FBACS~~ is required to be OPERABLE to alleviate the consequences of a fuel handling accident. 3 1 2

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. ~~If~~ moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. ~~If~~ moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, or 4 would require the unit to be shutdown unnecessarily. 4

crane travel with loads over fuel stored in the spent fuel pool and

or storage

storing or

MHC006

A.1

With one ABGTS ~~FBACS~~ train inoperable, in MODE 1, 2, 3, or 4 action must be taken to restore OPERABLE status within 7 days. During this period, the remaining OPERABLE train is adequate to perform the ABGTS ~~FBACS~~ function. The 7 day Completion Time is based on the risk from an event occurring requiring the inoperable ABGTS ~~FBACS~~ train, and the remaining ABGTS ~~FBACS~~ train providing the required protection. 4 1

B.1

~~-----------------------------------REVIEWER'S NOTE-------------------------~~
~~Adoption of Condition B is dependent on a commitment from the licensee to have guidance available describing compensatory measures to be taken in the event of an intentional and unintentional entry into Condition B.~~
~~--~~ 5

If the ABSCE ~~fuel building~~ boundary is inoperable in MODE 1, 2, 3, or 4, the ABGTS ~~FBACS~~ trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE ABSCE ~~fuel building~~ boundary within 24 hours. During the period that the ABSCE ~~fuel building~~ boundary is inoperable, appropriate compensatory measures ~~[~~consistent with the intent, as 1 3

BASES

ACTIONS (continued)

applicable, of GDC 19, 60, 61, 63, 64 and 10 CFR Part 100~~]~~ should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the ~~fuel building~~ ABSCE boundary. 3 1

~~[~~ C.1 and C.2 3

In MODE 1, 2, 3, or 4, when Required Action A.1 or B.1 cannot be completed within the associated Completion Time, or when both ~~FBACS~~ ABGTS trains are inoperable for reasons other than an inoperable ~~fuel building~~ ABSCE boundary (i.e., Condition B), the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in MODE 3 within 6 hours, and in MODE 5 within 36 hours. The Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. ~~]~~ 1 3

MHC006

~~D.1 and D.2~~

~~When Required Action A.1 cannot be completed within the required Completion Time, during movement of [recently] irradiated fuel assemblies in the fuel building, the OPERABLE FBACS train must be started immediately or [recently] irradiated fuel movement suspended. This action ensures that the remaining train is OPERABLE, that no undetected failures preventing system operation will occur, and that any active failure will be readily detected.~~

~~If the system is not placed in operation, this action requires suspension of [recently] irradiated fuel movement, which precludes a fuel handling accident [involving handling recently irradiated fuel]. This does not preclude the movement of fuel assemblies to a safe position.~~ 4

ABGTS ~~FBACS~~ 1
B 3.7.~~13~~ 12

BASES

ACTIONS (continued)

~~E~~ D.1 4

MHC006

When ~~two~~ the required trains~~s~~ of ~~the FBACS are~~ ABGTS is inoperable during movement of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel building~~ auxiliary, action must be taken to place the unit in a condition in which the LCO does not apply. Action must be taken immediately to suspend movement of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel building~~ auxiliary. This does not preclude the movement of fuel to a safe position. 4 2 4 3 1 3 4 1 4

Insert 7

SURVEILLANCE REQUIREMENTS

SR 3.7.~~13~~ 12.1 1

Standby systems should be checked periodically to ensure that they function properly. As the environmental and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system.

INSERT 4

~~Monthly heater operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥15 minutes to demonstrate the function of the system.] [The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available.~~ TSTF-522

~~OR~~ 6

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.~~
~~]~~ 5

~~[~~ SR 3.7.~~13~~ 12.2 3

This SR verifies that the required ~~FBACS~~ ABGTS testing is performed in accordance with the ~~[~~Ventilation Filter Testing Program (VFTP)~~]~~. The ~~[~~VFTP~~]~~ includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the ~~[~~VFTP~~]~~. ~~]~~ 2 3 3

TSTF-522

INSERT 4

Operation [with heaters on] for ≥ 15 continuous minutes demonstrates OPERABILITY of the system. Periodic operation ensures that [heater failure,] blockage, fan or motor failure, or excessive vibration can be detected for corrective action. 3 3

Operation will be demonstrated by initiating, from the control room, flow through the HEPA filter and charcoal adsorber train. 2

4 Insert 7

E.1

When the required train of ABGTS is inoperable with fuel stored in the spent fuel pool, action must be taken prevent the possibility of a load drop over fuel stored in the spent fuel pool. Suspending all crane operation with loads over the spent fuel pool will eliminate the possibility of dropping a load onto fuel assemblies stored in the spent fuel pool. ~~The NOTE allows operation of the main hoist on the Auxiliary Building crane during this condition due to the main hoist meeting the requirements of NUREG-0554 and NUREG-0612 for a single failure proof crane.~~ MHC006 MHC003

BASES

SURVEILLANCE REQUIREMENTS (continued)

[SR 3.7.~~13~~ 12.3

This SR verifies that each ~~FBACS~~ ABGTS train starts and operates on an actual or simulated actuation signal. INSERT 5 ~~[The [18] month Frequency is consistent with Reference 6.]~~

~~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.~~
~~-----]~~

SR 3.7.~~13~~ 12.4

This SR verifies the integrity of the ~~fuel~~ auxiliary building enclosure (i.e., spent fuel storage area and the ESF pump rooms). The ability of the ~~fuel~~ auxiliary building to maintain negative pressure with respect to potentially uncontaminated adjacent areas is periodically tested to verify proper function of the ~~FBACS~~ ABGTS. During the ~~[~~post accident~~]~~ mode of operation, the ~~FBACS~~ ABGTS is designed to maintain a slight negative pressure in the ~~fuel~~ auxiliary building, to prevent unfiltered LEAKAGE. The ~~FBACS~~ ABGTS is designed to maintain a pressure ≤ ~~[-0.125]~~ - 0.25 inches water gauge with respect to atmospheric pressure at a flow rate ~~of [20,000]~~ ≥ 8,100 and ≤ 9,900 cfm to the ~~fuel~~ auxiliary building. ~~[The Frequency of [18] months is consistent with the guidance provided in NUREG-0800, Section 6.5.1 (Ref. 7).~~

~~An [18] month Frequency (on a STAGGERED TEST BASIS) is consistent with Reference 6.~~

~~OR~~

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

MHC002

4 ~~6~~ **INSERT 5**

MHC006

The SR is modified by two Notes that specify when verification of ABGTS actuation for each actuation signal is required to be met. ABGTS actuation on a Containment Phase A isolation signal is required to be met in MODES 1, 2, 3 and 4. ABGTS actuation on fuel storage pool area high radiation signal is required to be met during movement of ~~recently~~ irradiated fuel assemblies ~~in the auxiliary building~~.

and with fuel stored in the spent fuel pool

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.~~
~~-----]~~

~~[SR 3.7.13.5~~

~~Operating the FBACS filter bypass damper is necessary to ensure that the system functions properly. The OPERABILITY of the FBACS filter bypass damper is verified if it can be closed. [An [18] month Frequency is consistent with Reference 6.~~

~~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

MHC006

1. U FSAR, Section ~~[6.5.1]~~ 6.2.3.
2. ~~FSAR, Section [9.4.5].~~
3. ~~3~~ 2. U FSAR, Section ~~[15.7.4]~~ 15.5.3.
4. ~~4~~ ~~3~~ 3. Regulatory Guide ~~1.25~~ 1.183.
5. ~~5~~ ~~4~~ 4. 10 CFR 100.
6. ~~6. Regulatory Guide 1.52, Rev. [2].~~ Regulatory Guide 1.4
7. ~~7. NUREG-0800, Section 6.5.1, Rev. 2, July 1981.~~ UFSAR, Section 15.5.6

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.12 BASES, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)

1. Sequoyah Nuclear Plant (SQN) design does not include the ISTS 3.7.12, "Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)." Therefore, ISTS 3.7.13, "Fuel Building Air Cleanup System (FBACS)" has been renumbered as ITS 3.7.12. Additionally, SQN does not have a Fuel Building Air Cleanup System (FBACS); therefore, ISTS 3.7.13 has been renamed to Auxiliary Building Gas Treatment System (ABGTS) for ITS 3.7.12.

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 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 changes made to the Specification.

5. 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.

6. ISTS SR 3.7.13.1, SR 3.7.13.3 and SR 3.7.13.4 Bases (ITS SR 3.7.12.1, SR 3.7.12.3 and SR 3.7.12.4, respectively) provides two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program. Additionally, the Frequency description which is being removed will be included in the Surveillance Frequency Control Program.

MHC002

7. The word “pressure” has been added to align with ISTS SR 3.7.13.4 (ITS SR 3.7.12.4).

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.12, AUXILIARY BUILDING GAS TREATMENT (ABGTS)

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

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ATTACHMENT 13

ITS 3.7.13, SPENT FUEL POOL WATER LEVEL

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

ITS

A01

ITS 3.7.13

KAB066

REFUELING OPERATIONS

3/4.9.11 SPENT FUEL ~~PIT~~ WATER LEVEL

POOL

A01

LIMITING CONDITION FOR OPERATION

LCO 3.7.13

3.9.11 At least 23 feet of water shall be maintained over the top of irradiated fuel assemblies seated in the storage racks.

~~During movement of irradiated fuel assemblies in the spent fuel pool.~~

~~L01~~

Applicability

APPLICABILITY: ~~Whenever irradiated fuel assemblies are in the spent fuel pit.~~

~~irradiated~~

~~L02~~

pool

A01

stet

ACTION:

immediately

A02

ACTION A

With the requirements of the specification not satisfied, suspend all movement of fuel assemblies ~~and crane operations with loads in the fuel storage areas~~ ~~and restore the water level to within its limit within 4 hours~~. The provisions of Specification 3.0.3 are not applicable.

~~L02~~

~~L01~~

stet

stet

ACTION A Note

SURVEILLANCE REQUIREMENTS

pool

A01

SR 3.7.13.1

4.9.11 The water level in the spent fuel ~~pit~~ shall be determined to be at least its minimum required depth ~~at least once per 7 days~~ ~~when irradiated fuel assemblies are in the spent fuel pit~~.

~~L01~~

stet

pool

A01

in accordance with the Surveillance Frequency Control Program

LA01

PLANT SYSTEMS

3/4.7.9 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.9. This specification is deleted.

(Pages 3/4 7-21 through 3/4 7-25 are deleted)

Enclosure 2, Volume 12, Rev. 0, Page 488 of 704

PAGES 3/4 7-26 through 3/4 7-28 are deleted.

Enclosure 2, Volume 12, Rev. 0, Page 489 of 704

PLANT SYSTEMS

3/4.7.10 SEALED SOURCE CONTAMINATION

LIMITING CONDITION FOR OPERATION

3.7.10 This specification has been deleted.

Enclosure 2, Volume 12, Rev. 0, Page 490 of 704

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Enclosure 2, Volume 12, Rev. 0, Page 491 of 704

PLANT SYSTEMS

3/4.7.11 FIRE SUPPRESSION SYSTEMS

FIRE SUPPRESSION WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.11.1 This Specification is deleted.

Pages 3/4 7-31 and 3/4 7-32 are deleted.

Enclosure 2, Volume 12, Rev. 0, Page 492 of 704

PLANT SYSTEMS

SPRAY AND/OR SPRINKLER SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.11.2 This Specification is deleted.

Pages 3/4 7-33 and 3/4 7-34 are deleted.

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PLANT SYSTEMS

CO_2 SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.11.3 This Specification is deleted.

Pages 3/4 7-35 and 3/4 7-36 are deleted.

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PLANT SYSTEMS

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.11.4 This Specification is deleted.

Enclosure 2, Volume 12, Rev. 0, Page 495 of 704

TABLE 3.7-5

FIRE HOSE STATIONS

This Table is deleted
(Pages 3/4 7-38 through 3/4 7-40 are deleted)

Enclosure 2, Volume 12, Rev. 0, Page 496 of 704

3/4.7.12 FIRE BARRIER PENETRATIONS

LIMITING CONDITION FOR OPERATION

3.7.12 This Specification is deleted.

Enclosure 2, Volume 12, Rev. 0, Page 497 of 704

ITS

A01

ITS 3.7.13

KAB066

REFUELING OPERATIONS

3/4.9.11 WATER LEVEL-SPENT FUEL ~~PIT~~ POOL A01

LIMITING CONDITION FOR OPERATION

LCO 3.7.13

3.9.11 At least 23 feet of water shall be maintained over the top of irradiated fuel assemblies seated in the storage racks.

Applicability

~~During movement of irradiated fuel assemblies in the spent fuel pool.~~ ~~L01~~

APPLICABILITY: ~~Whenever irradiated fuel assemblies are in the spent fuel pit.~~ stet pool A01

~~irradiated~~ ~~L02~~

ACTION:

immediately A02

ACTION A

With the requirements of the above specification not satisfied, suspend all movement of fuel assemblies ~~and crane operations with loads in the fuel storage areas~~ ~~and restore the water level to within its limit within 4 hours~~. The provisions of Specification 3.0.3 are not applicable.

~~L02~~

stet stet

ACTION A Note

~~L01~~

SURVEILLANCE REQUIREMENTS

pool A01

SR 3.7.13.1

4.9.11 The water level in the spent fuel ~~pit~~ shall be determined to be at least its minimum required depth ~~at least once per 7 days~~ ~~when irradiated fuel assemblies are in the spent fuel pit~~. ~~L01~~

stet pool A01

in accordance with the Surveillance Frequency Control Program LA01

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PLANT SYSTEMS

3/4.7.9 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.9 This specification is deleted.

(Pages 3/4 7-21 through 3/4 7-25 are deleted)

Enclosure 2, Volume 12, Rev. 0, Page 499 of 704

PAGES 3/4 7-26 through 3/4 7-40 are deleted.

Enclosure 2, Volume 12, Rev. 0, Page 500 of 704

3/4.7.10 SEALED SOURCE CONTAMINATION

LIMITING CONDITION FOR OPERATION

3.7.10 This specification has been deleted.

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Enclosure 2, Volume 12, Rev. 0, Page 502 of 704

PLANT SYSTEMS

3/4.7.11 FIRE SUPPRESSION SYSTEMS

FIRE SUPPRESSION WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.11.1 This Specification is deleted.

Pages 3/4 7-43 and 3/4 7-44 are deleted.

Enclosure 2, Volume 12, Rev. 0, Page 503 of 704

PLANT SYSTEMS

SPRAY AND/OR SPRINKLER SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.11.2 This Specification is deleted.

Pages 3/4 7-45 and 3/4 7-46 are deleted.

Enclosure 2, Volume 12, Rev. 0, Page 504 of 704

PLANT SYSTEMS

CO_2 SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.11.3 This Specification is deleted.

Enclosure 2, Volume 12, Rev. 0, Page 505 of 704

PLANT SYSTEMS

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.11.4 This Specification is deleted.

Enclosure 2, Volume 12, Rev. 0, Page 506 of 704

TABLE 3.7-5

FIRE HOSE STATIONS

This Table is deleted
(Pages 3/4 7-49 through 3/4 7-51)

Enclosure 2, Volume 12, Rev. 0, Page 507 of 704

3/4.7.12 FIRE BARRIER PENETRATIONS

LIMITING CONDITION FOR OPERATION

3.7.12 This Specification is deleted.

Enclosure 2, Volume 12, Rev. 0, Page 508 of 704

DISCUSSION OF CHANGES
ITS 3.7.13, SPENT FUEL POOL WATER LEVEL

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 3.9.11 ACTION states, in part, that with the requirements of the Specification not satisfied, to suspend all movement of fuel assemblies. ITS 3.7.13 Required Action A.1, requires the immediate suspension of movement of irradiated fuel assemblies in the spent fuel pool. This changes the CTS by explicitly specifying that the compensatory action to suspend all movement of fuel assemblies requires an immediate response, not to preclude movement of a fuel assembly to a safe position.

The purpose of the CTS 3.9.11 ACTION to suspend all movement of fuel assemblies is to help ensure the assumptions of a fuel handling accident are met. The current action does not specify a time; however it implies that the action is immediate. This change is acceptable because it only provides clarification that the compensatory action requires an immediate response. This change is designated as administrative because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.9.11 requires verification at least once per 7 days that spent fuel pit water level water to be within limits, whenever irradiated fuel assemblies are in the pit. ITS SR 3.7.13.1 requires a similar Surveillance but specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequency for the SR to the Surveillance Frequency Control Program.

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DISCUSSION OF CHANGES
ITS 3.7.13, SPENT FUEL POOL WATER LEVEL

The removal of these details related to Surveillance Requirement Frequencies 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 existing Surveillance Frequencies are removed from Technical Specifications and placed under licensee control pursuant to the methodology described in NEI 04-10. A new program (Surveillance Frequency Control Program) is being added to the Administrative Controls section of the Technical Specifications describing the control of Surveillance Frequencies. The surveillance test requirements remain in the Technical Specifications. The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. This change is designated as a less restrictive removal of detail change, because the Surveillance Frequency is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

KAB066

Not Used

L01 ~~*(Category 2 – Relaxation of Applicability)* CTS 3.9.11 Applicability states "Whenever irradiated fuel assemblies are in the spent fuel pit." CTS SR 4.9.11 requires the water level in the spent fuel pit to be verified every 7 days when irradiated fuel assemblies are in the spent fuel pit. ITS 3.7.13 is applicable "During movement of irradiated fuel assemblies in the spent fuel pool." ITS SR 3.0.1 requires ITS SR 3.7.13.1 to be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. In addition, since the Applicability is now limited to when irradiated fuel is being moved, the CTS ACTION to "restore water level to within its limit within 4 hours after movement of fuel has been suspended" has also been deleted. This changes the CTS by restricting the Applicability of the spent fuel pool water level Specification and performance of the Surveillance to when there is a potential for a fuel handling accident, i.e., during the movement of irradiated fuel assemblies in the spent fuel pool.~~

~~The purpose of CTS 3.9.11 is to ensure that the minimum spent fuel pit water level assumption in the fuel handling accident analysis is met. This change is acceptable because the requirements continue to ensure that the conditions assumed in the safety analyses and licensing basis are maintained. The SQN fuel handling accident analysis (outside containment) assumes that a single fuel assembly is damaged. A key assumption in the analysis is that there is ≥ 23 feet of water over the damaged assembly, as this depth is directly related to the cleanup of the fission products before release from the spent fuel pool. A fuel handling accident is only assumed to occur when an irradiated fuel assembly is being moved. Therefore, ITS 3.7.13 imposes controls on minimum spent fuel pool water level only during the movement of irradiated fuel assemblies in the spent fuel pool. ITS 4.3.2 specifies the requirement that the spent fuel pool be designed and maintained to prevent inadvertent draining of the pool below elevation 722. This change is designated as less restrictive because the ITS LCO requirements are applicable in fewer operating conditions than in the CTS.~~

DISCUSSION OF CHANGES
ITS 3.7.13, SPENT FUEL POOL WATER LEVEL

Not Used

KAB066

L02 ~~*(Category 4 – Relaxation of Required Action)* CTS 3.9.11 ACTION states that when the spent fuel pit water level is not met, suspend all movement of fuel assemblies and crane operations with loads in the fuel storage areas. ITS 3.7.13 Required Action A.1 states that when spent fuel pool water level is not within limits, immediately suspend movement of irradiated fuel assemblies in the spent fuel pool. This changes the CTS by deleting the requirements to suspend movement of new fuel and to suspend crane operation over the spent fuel storage areas.~~

~~The purpose of the CTS 3.9.11 ACTION is to preclude a fuel handling accident from occurring when the initial conditions for that accident are not met. A fuel handling accident is only assumed to occur when an irradiated fuel assembly is being moved. ITS 3.7.13 ACTION A continues to require suspending movement of irradiated fuel. However, damaging a fuel assembly which has not been irradiated has no significant radiological effects and is not assumed in the fuel handling accident analysis. Therefore, stopping the handling of fuel assemblies which have not been irradiated when the spent fuel pool water level is less than the limit is not required.~~

~~The dropping of loads onto fuel assemblies in the spent fuel pool is not an initiator that is assumed in the fuel handling accident analysis. The movement of heavy loads is addressed by NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," and Generic Letter 81-07. In the closeout of Generic Letter 81-07, the NRC concluded that restrictions on heavy loads over the spent fuel pool need not be included in the Technical Specifications. Therefore, these activities are not restricted in the Technical Specifications when the spent fuel pool water level is not within limit. 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

Fuel ~~Storage~~ Spent Pool Water Level 1
3.7.~~15~~ 13

3.7 PLANT SYSTEMS

3.7.~~15~~ 13 Spent Fuel ~~Storage~~ Pool Water Level KAB066 1

3.9.11 LCO 3.7.~~15~~ 13 The spent fuel ~~storage~~ pool water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks. 1

APPLICABILITY APPLICABILITY: ~~During movement of~~ Whenever irradiated fuel assemblies are in the spent fuel ~~storage~~ pool. 4 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent Fuel ~~storage~~ pool water level not within limit.	~~A.1~~ --------------------NOTE-------------------- LCO 3.0.3 is not applicable. -- Insert 1	
	A.1 Suspend all movement of ~~irradiated~~ fuel assemblies and crane operations with loads in the ~~spent~~ stet fuel ~~storage~~ ~~pool~~ areas.	Immediately

ACTION 1 5 5 3 1 5

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.~~15~~ 13.1 Verify the spent fuel ~~storage~~ pool water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated in the storage racks.	~~[7 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

SR 4.9.11 1 2

5 INSERT 1

KAB066

AND		
A.2	Restore spent fuel pool water level to within limit.	4 hours

CTS

Fuel ~~Storage~~ Spent Pool Water Level
3.7.~~15~~ 13 1

3.7 PLANT SYSTEMS

KAB066

3.7.~~15~~ 13 Spent Fuel ~~Storage~~ Pool Water Level 1

3.9.11 LCO 3.7.~~15~~ 13 The spent fuel ~~storage~~ pool water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks. 1

APPLICABILITY APPLICABILITY: ~~During movement of~~ Whenever irradiated fuel assemblies are in the spent fuel ~~storage~~ pool. 4 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent Fuel ~~storage~~ pool water level not within limit.	~~A.1~~ ---------------NOTE-------------- LCO 3.0.3 is not applicable. --- Insert 1 A.1 Suspend all movement of ~~irradiated~~ stet fuel assemblies and crane operations with loads in the ~~spent~~ fuel ~~storage~~ ~~pool~~ areas.	Immediately

ACTION 1 5 5 1 5 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.~~15~~ 13.1 Verify the spent fuel ~~storage~~ pool water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated in the storage racks.	~~[7 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

SR 4.9.11 1 2

5 INSERT 1

KAB066

AND		
A.2 Restore spent fuel pool water level to within limit.	4 hours	

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.13, SPENT FUEL STORAGE POOL WATER LEVEL

1. Sequoyah Nuclear Plant (SQN) design does not include ISTS 3.7.12, "Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)" and ISTS 3.7.14, "Penetration Room Exhaust Air Cleanup System (PREACS)." Therefore, ISTS 3.7.15 has been renumbered as ITS 3.7.13. Additionally, the title "Fuel Storage Pool Water Level" has been changed to "Spent Fuel Pool Water Level."

2. ISTS SR 3.7.15.1 provides two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

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

KAB066

4. ISTS 3.7.15 Applicability is "During movement of irradiated fuel assemblies in the fuel storage pool." ITS 3.7.13 Applicability is "Whenever irradiated fuel assemblies are in the spent fuel pool." The change in the Mode of Applicability from "During movement of irradiated fuel assemblies in the fuel storage pool," to "Whenever irradiated fuel assemblies are in the spent fuel pool," is acceptable because this reflects SQN's current licensing basis as reflected in CTS 3.9.11.

5. ISTS 3.7.15 has a single Required Action, A.1, "Suspend movement of irradiated fuel assemblies in the spent fuel storage pool." ITS 3.7.13 adds an additional Required Action, A.2, "Restore spent fuel pool water level to within limit." This additional Required Action is acceptable because it reflects SQN's current licensing basis as reflected in CTS 3.9.11 Actions. With the addition of ITS 3.7.13 Required Action A.2, the NOTE for Condition A becomes applicable to both ITS 3.7.13 Required Action A.1 and A.2. Therefore, the "A.1" designator has been moved down to the Required Action and the NOTE expanded to address the entire column of Condition A, Required Actions. As discussed in the ISTS Bases for LCO 3.0.3, ISTS LCO 3.7.15 (ITS LCO 3.7.13) can be applicable in any or all MODES. If the LCO and Required Actions of ISTS LCO 3.7.15 are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition.

ISTS 3.7.15 Required Action A.1 is, "Suspend movement of irradiated fuel assemblies in the spent fuel storage pool." ITS 3.7.13 Required Action A.1 is, "Suspend all movement of fuel assemblies and crane operations with loads in the fuel storage areas." The change in Required Action A.1 from, "Suspend movement of irradiated fuel assemblies in the spent fuel storage pool," to "Suspend all movement of fuel assemblies and crane operations with loads in the fuel storage areas," is acceptable because this reflects SQN's current licensing basis as reflected in CTS 3.9.11.

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

B 3.7 PLANT SYSTEMS

B 3.7.~~15~~13 Spent Fuel ~~Storage~~ Pool Water Level 1

BASES

BACKGROUND

The minimum water level in the spent fuel ~~storage~~ pool meets the assumptions of iodine decontamination factors following a fuel handling accident. The specified water level shields and minimizes the general area dose when the storage racks are filled to their maximum capacity. The water also provides shielding during the movement of spent fuel. 1

A general description of the spent fuel ~~storage~~ pool design is given in the UFSAR, Section ~~[~~9.1.2~~]~~ (Ref. 1). A description of the Spent Fuel Pool Cooling and Cleanup System is given in the UFSAR, Section ~~[~~9.1.3~~]~~ (Ref. 2). The assumptions of the fuel handling accident are given in the UFSAR, Section ~~[15.7.4]~~ 15.5.6 (Ref. 3). 1 2 3 2 3

APPLICABLE SAFETY ANALYSES

The minimum water level in the spent fuel ~~storage~~ pool meets the assumptions of the fuel handling accident described in Regulatory Guide 1.~~25~~183 (Ref. 4). The resultant 2 hour thyroid dose per person at the exclusion area boundary is a small fraction of the 10 CFR ~~100~~ 50.67 (Ref. 5) limits. 1 2

According to Reference 4, there is 23 ft of water between the top of the damaged fuel bundle and the fuel pool surface during a fuel handling accident. With 23 ft of water, the assumptions of Reference 4 can be used directly. In practice, this LCO preserves this assumption for the bulk of the fuel in the storage racks. ~~In the case of a single bundle dropped and lying horizontally on top of the spent fuel racks, however, there may be < 23 ft of water above the top of the fuel bundle and the surface, indicated by the width of the bundle. To offset this small nonconservatism, the analysis assumes that all fuel rods fail, although analysis shows that only the first few rows fail from a hypothetical maximum drop.~~ 2

The spent fuel ~~storage~~ pool water level satisfies Criteria 2 and 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

The spent fuel ~~storage~~ pool water level is required to be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks. The specified water level preserves the assumptions of the fuel handling accident analysis (Ref. 3). As such, it is the minimum required for fuel storage and movement within the spent fuel ~~storage~~ pool. 1 1

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1

BASES

APPLICABILITY

KAB-066

This LCO applies ~~during movement of~~ whenever irradiated fuel assemblies are in the spent fuel ~~storage~~ pool, since the potential for a release of fission products exists. 6 1

ACTIONS

A.1 and A.2 6

The Required ~~Action A.1 is~~ Actions are modified by a Note indicating that LCO 3.0.3 does not apply. 6

When the initial conditions for prevention of an accident cannot be met, steps should be taken to preclude the accident from occurring. When the spent fuel ~~storage~~ pool water level is lower than the required level, the movement of ~~irradiated~~ stet fuel assemblies and crane operations with loads in the fuel ~~storage pool~~ areas is immediately suspended ~~to a safe position~~. This action effectively precludes the occurrence of a fuel handling accident. This does not preclude movement of a fuel assembly or crane load to a safe position. 1 6 6

If ~~moving irradiated fuel assemblies~~ the spent fuel pool water level is not within the limit while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If ~~moving irradiated fuel assemblies~~ the spent fuel pool water level is not within the limit while in MODES 1, 2, 3, and 4, the ~~fuel movement is~~ Required Actions are independent of reactor operations. Therefore, inability to suspend movement of ~~irradiated~~ fuel assemblies , suspend crane operations with loads, or restore spent fuel pool water level to within the limit is not sufficient reason to require a reactor shutdown. 6 7

Insert 2

SURVEILLANCE REQUIREMENTS

SR 3.7.~~15~~ 13.1 1

This SR verifies sufficient spent fuel ~~storage~~ pool water is available in the event of a fuel handling accident. The water level in the spent fuel ~~storage~~ pool must be checked periodically. ~~[The 7 day Frequency is appropriate because the volume in the pool is normally stable. Water level changes are controlled by plant procedures and are acceptable based on operating experience.~~ 1 4

~~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.~~
~~------]~~ 5

During refueling operations, the level in the spent fuel ~~storage~~ pool is in equilibrium with the refueling canal, and the level in the refueling canal is checked daily in accordance with SR ~~3.9.6.1~~ 3.9.7.1. 1 SII

7 INSERT 2

KAB066

The design basis fuel handling accident assumes the drop and damage of an irradiated fuel assembly; however, there are other potential failure mechanisms of the irradiated fuel in the spent fuel pool that could result in the release of fission product gases~~, which are bounded by the design basis fuel handling accident~~. As a result, with the spent fuel pool water level less than 23 feet above the top of irradiated fuel assemblies seated in storage racks, the iodine decontamination factor assumption in the design basis fuel handling accident analysis cannot be met. SII

Required Action A.2 requires the restoration of the spent fuel pool water level to the minimum required level to preserve the assumptions of the fuel handling accident analysis (Ref. 3). The Completion Time of 4 hours is considered sufficient to correct minor problems and restore the water level.

BASES

REFERENCES	1. U FSAR, Section ~~[~~9.1.2~~]~~. 2. U FSAR, Section ~~[~~9.1.3~~]~~. 3. U FSAR, Section ~~[15.7.4]~~ 15.5.6. 4. Regulatory Guide 1.~~25~~ 183, ~~[~~Rev. 0~~]~~. 5. 10 CFR ~~100.11~~ 50.67.

B 3.7 PLANT SYSTEMS

B 3.7.~~15~~ 13 Spent Fuel ~~Storage~~ Pool Water Level 1

BASES

BACKGROUND

The minimum water level in the spent fuel ~~storage~~ pool meets the assumptions of iodine decontamination factors following a fuel handling accident. The specified water level shields and minimizes the general area dose when the storage racks are filled to their maximum capacity. The water also provides shielding during the movement of spent fuel. 1

A general description of the spent fuel ~~storage~~ pool design is given in the U FSAR, Section ~~[~~9.1.2~~]~~ (Ref. 1). A description of the Spent Fuel Pool Cooling and Cleanup System is given in the U FSAR, Section ~~[~~9.1.3~~]~~ (Ref. 2). The assumptions of the fuel handling accident are given in the U FSAR, Section ~~[15.7.4]~~ 15.5.6 (Ref. 3). 1 2 3 2 3

APPLICABLE SAFETY ANALYSES

The minimum water level in the spent fuel ~~storage~~ pool meets the assumptions of the fuel handling accident described in Regulatory Guide 1.~~25~~ 183 (Ref. 4). The resultant 2 hour thyroid dose per person at the exclusion area boundary is a small fraction of the 10 CFR ~~100~~ 50.67 (Ref. 5) limits. 1 2

According to Reference 4, there is 23 ft of water between the top of the damaged fuel bundle and the fuel pool surface during a fuel handling accident. With 23 ft of water, the assumptions of Reference 4 can be used directly. In practice, this LCO preserves this assumption for the bulk of the fuel in the storage racks. ~~In the case of a single bundle dropped and lying horizontally on top of the spent fuel racks, however, there may be < 23 ft of water above the top of the fuel bundle and the surface, indicated by the width of the bundle. To offset this small nonconservatism, the analysis assumes that all fuel rods fail, although analysis shows that only the first few rows fail from a hypothetical maximum drop.~~ 2

The spent fuel ~~storage~~ pool water level satisfies Criteria 2 and 3 of 10 CFR 50.36(c)(2)(ii). 1

LCO

The spent fuel ~~storage~~ pool water level is required to be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks. The specified water level preserves the assumptions of the fuel handling accident analysis (Ref. 3). As such, it is the minimum required for fuel storage and movement within the spent fuel ~~storage~~ pool. 1 1

1

KAB066

BASES

APPLICABILITY

whenever

are

This LCO applies ~~during movement of~~ irradiated fuel assemblies in the spent fuel ~~storage~~ pool, since the potential for a release of fission products exists. 6 1

ACTIONS

A.1 and A.2 6

The Required ~~Action A.1 is~~ Actions are modified by a Note indicating that LCO 3.0.3 does not apply. 6

When the initial conditions for prevention of an accident cannot be met, steps should be taken to preclude the accident from occurring. When the spent fuel ~~storage~~ pool water level is lower than the required level, the stet movement of ~~irradiated~~ fuel assemblies and crane operations with loads in the fuel ~~storage~~ pool areas is immediately suspended ~~to a safe position~~. This action effectively precludes the occurrence of a fuel handling accident. This does not preclude movement of a fuel assembly or crane load to a safe position. 1 6 6

If ~~moving irradiated fuel assemblies~~ the spent fuel pool water level is not within the limit while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If ~~moving irradiated fuel assemblies~~ the spent fuel pool water level is not within the limit while in MODES 1, 2, 3, and 4, the ~~fuel movement is~~ Required Actions are independent of reactor operations. Therefore, inability to suspend movement of ~~irradiated~~ fuel assemblies, suspend crane operations with loads, or restore spent fuel pool water level to within the limit is not sufficient reason to require a reactor shutdown. 6

Insert 2 7

SURVEILLANCE REQUIREMENTS

SR 3.7.~~15~~.1 1
13

This SR verifies sufficient spent fuel ~~storage~~ pool water is available in the event of a fuel handling accident. The water level in the spent fuel ~~storage~~ pool must be checked periodically. ~~[The 7 day Frequency is appropriate because the volume in the pool is normally stable. Water level changes are controlled by plant procedures and are acceptable based on operating experience.~~ 1 4

~~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.~~
~~---]~~ 5

During refueling operations, the level in the spent fuel ~~storage~~ pool is in equilibrium with the refueling canal, and the level in the refueling canal is checked daily in accordance with SR ~~3.9.6.1~~ 3.9.7.1. 1 SII

7 INSERT 2

KAB-066

The design basis fuel handling accident assumes the drop and damage of an irradiated fuel assembly; however, there are other potential failure mechanisms of the irradiated fuel in the spent fuel pool that could result in the release of fission product gases~~, which are bounded by the design basis fuel handling accident~~. As a result, with the spent fuel pool water level less than 23 feet above the top of irradiated fuel assemblies seated in storage racks, the iodine decontamination factor assumption in the design basis fuel handling accident analysis cannot be met. SII

Required Action A.2 requires the restoration of the spent fuel pool water level to the minimum required level to preserve the assumptions of the fuel handling accident analysis (Ref. 3). The Completion Time of 4 hours is considered sufficient to correct minor problems and restore the water level.

BASES

REFERENCES

1. U FSAR, Section ~~[~~9.1.2~~]~~.
2. U FSAR, Section ~~[~~9.1.3~~]~~.
3. U FSAR, Section ~~[15.7.4]~~ 15.5.6.
4. Regulatory Guide 1.~~25~~ 183, ~~[~~Rev. 0~~]~~.
5. 10 CFR ~~100.11~~ 50.67.

JUSTIFICATION FOR DEVIATIONS
ITS 3.7.13 BASES, FUEL STORAGE POOL WATER LEVEL

1. Sequoyah Nuclear Plant (SQN) design does not include ISTS B 3.7.12, "Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)" and ISTS B 3.7.14, "Penetration Room Exhaust Air Cleanup System (PREACS)." Therefore, ISTS B 3.7.15, "Fuel Storage Pool Water Level" has been renumbered as ITS B 3.7.13, "Fuel Storage Pool Water Level."
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 ISTS Bases 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. ISTS SR 3.7.15.1 (ITS SR 3.7.13.1) provides two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program. Therefore, the Frequency for ITS SR 3.7.13.1 is accordance with the Surveillance Frequency Control Program.
5. 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.

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

7. ISTS 3.7.15 has a single Required Action, A.1. ITS 3.7.13 adds an additional Required Action A.2, "Restore spent fuel pool water level to within limit." Therefore, the ISTS Bases have been revised to include a discussion concerning ITS 3.7.13 Required Action A.2.

KAB066

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.13, SPENT FUEL STORAGE POOL WATER LEVEL

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

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ATTACHMENT 14

ITS 3.7.14, SPENT FUEL POOL BORON CONCENTRATION

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

ITS

A01

ITS 3.7.14

PLANT SYSTEMS

3/4.7.13 SPENT FUEL POOL ~~MINIMUM~~ BORON CONCENTRATION

A01

LIMITING CONDITION FOR OPERATION

LCO 3.7.14

3.7.13 The spent fuel pool boron concentration shall be ≥ 2000 ppm.

Applicability

APPLICABILITY: Whenever fuel assemblies are stored in the spent fuel storage ~~racks~~.

pool and a spent fuel pool verification has not been performed since the last movement of fuel assemblies in the spent fuel pool

L01

ACTION:

Required Action A.1 and A.2.1

a. With the requirements of the specification not satisfied, suspend all movement of fuel assemblies and initiate action to restore spent fuel ~~storage~~ pool boron concentration to within limit. The provisions of Specification 3.0.3 are not applicable.

A01

Add proposed Required Action A.2.2 and associated Completion Time

L01

Required Action A Note

SURVEILLANCE REQUIREMENTS

In accordance with the Surveillance Frequency Control Program

LA01

SR 3.7.14.1

4.7.13.1 Verify ~~at least once per 7 days~~ the spent fuel pool boron concentration is within limit.

~~4.7.13.2 Verify at least once per 72 hours during fuel movement the spent fuel pool boron concentration is within limit and until the configuration of the assemblies in the storage rack is verified to comply with the criticality loading criteria specified in Design Feature 5.6.1.1.c.~~

L02

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ITS A01 ITS 3.7.14

PLANT SYSTEMS

3/4.7.13 SPENT FUEL POOL ~~MINIMUM~~ BORON CONCENTRATION A01

LIMITING CONDITION FOR OPERATION

LCO 3.7.14 3.7.13 The spent fuel pool boron concentration shall be ≥ 2000 ppm.

Applicability APPLICABILITY: Whenever fuel assemblies are stored in the spent fuel storage ~~racks~~ pool and a spent fuel pool verification has not been performed since the last movement of fuel assemblies in the spent fuel pool. L01

ACTION:

Required Action A.1 and A.2.1 a. With the requirements of the specification not satisfied, suspend all movement of fuel assemblies and initiate action to restore spent fuel ~~storage~~ pool boron concentration to within limit. A01

Required Action A Note The provisions of Specification 3.0.3 are not applicable. Add proposed Required Action A.2.2 and associated Completion Time L01

SURVEILLANCE REQUIREMENTS

SR 3.7.14.1 4.7.13.1 Verify ~~at least once per 7 days~~ In accordance with the Surveillance Frequency Control Program the spent fuel pool boron concentration is within limit. LA01

~~4.7.13.2 Verify at least once per 72 hours during fuel movement the spent fuel pool boron concentration is within limit and until the configuration of the assemblies in the storage rack is verified to comply with the criticality loading criteria specified in Design Feature 5.6.1.1.c~~. L02

DISCUSSION OF CHANGES
ITS 3.7.14, SPENT FUEL POOL BORON CONCENTRATION

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

LA01 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.7.13.1 requires verification at least once per 7 days that the spent fuel pool boron concentration is within limit. ITS SR 3.7.14.1 requires a similar Surveillance but specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequency for the SR to the Surveillance Frequency Control Program.

The removal of these details related to Surveillance Requirement Frequencies 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 existing Surveillance Frequencies are removed from Technical Specifications and placed under licensee control pursuant to the methodology described in NEI 04-10. A new program (Surveillance Frequency Control Program) is being added to the Administrative Controls section of the Technical Specifications describing the control of Surveillance Frequencies. The surveillance test requirements remain in the Technical Specifications. The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. This change is designated as a less restrictive removal of detail change, because the Surveillance Frequency is being removed from the Technical Specifications.

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DISCUSSION OF CHANGES
ITS 3.7.14, SPENT FUEL POOL BORON CONCENTRATION

LESS RESTRICTIVE CHANGES

L01 *(Category 2 – Relaxation of Applicability)* CTS 3.7.13 requires the spent fuel pool boron concentration to be within limits whenever fuel assemblies are stored in the spent fuel storage racks. CTS 3.7.13 ACTION a requires that with the requirements of the specification not satisfied, suspend all movement of fuel assemblies and initiate action to restore spent fuel storage pool boron concentration to within limit. ITS 3.7.14 requires that the spent fuel pool boron concentration shall be ≥ 2000 ppm when fuel assemblies are stored in the fuel pool and a spent fuel pool verification has not been performed since the last movement of fuel assemblies in the spent fuel pool. Additionally, a new Required Action (Required Action A.2.2) has been added to allow the initiation of an action to perform a spent fuel pool verification as an option to initiating an action to restore spent fuel pool boron concentration to within limit. This changes the CTS by changing the Applicability and by adding an option for restoring the spent fuel pool boron concentration to within its limit.

The purpose of CTS 3.7.13 is to ensure adequate dissolved boron is in the spent fuel pool water to maintain the required subcriticality margin in the event of a fuel handling accident. This change is acceptable because the requirements continue to ensure that the boron concentration is maintained during the specified conditions assumed in the safety analyses and licensing basis (i.e., during fuel movement). Performing a spent fuel pool verification provides assurance that no fuel assemblies have been inadvertently misplaced in the spent fuel pool, thereby assuring a k_{eff} of less than 1.0 in the absence of soluble boron, including uncertainties, and a k_{eff} of less than 0.95 with at least 300 ppm boron (See HOLTEC Topical Reports HI-992349 and HI-992302 regarding boron credit in spent fuel pool). Therefore, following performance of a spent fuel pool verification, there is no potential for criticality and no need to restore the boron concentration. However, prior to resuming the movement of fuel assemblies, the concentration of boron must be restored. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L02 *(Category 7 – Relaxation of Surveillance Frequency)* CTS 4.7.13.1 requires verification at least once per 7 days that the spent fuel pool boron concentration is within limit. CTS 4.7.13.2 requires verification that the spent fuel pool boron concentration is within limits at least once per 72 hours during fuel movement and until the configuration of the assemblies in the storage rack is verified to comply with the criticality loading criteria specified in Design Feature 5.6.1.1.c. ITS SR 3.7.14.1 requires verification of the boron concentration in the spent fuel pool every 7 days. This changes the CTS by deleting the requirement to verify the spent fuel pool boron concentration is within limits at least once per 72 hours during fuel movement and until the configuration of the assemblies in the storage rack is verified to comply with the criticality loading criteria specified in Design Feature 5.6.1.1.c.

The purpose of CTS 4.7.13.1 is to verify that the concentration of boron in the spent fuel storage pool is within the required limit. ITS SR 3.7.14.1 will continue to verify that the boron concentration of the spent fuel pool is within the required

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DISCUSSION OF CHANGES
ITS 3.7.14, SPENT FUEL POOL BORON CONCENTRATION

limit. The change in the Surveillance Frequencies is acceptable because once the boron concentration is verified; there should be no major additions of water to the fuel pool that would cause a change in the boron concentration. This change is designated as less restrictive because more time is allowed to perform Surveillances in the ITS than was allowed in the CTS.

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

CTS

~~[~~Fuel ~~Storage~~ Spent Pool Boron Concentration~~]~~
3.7.~~16~~ 14 ① ②

3.7 PLANT SYSTEMS

3.7.~~16~~ 14 ~~[~~Spent Fuel ~~Storage~~ Pool Boron Concentration ~~]~~ ① ②

3.7.13 LCO 3.7.~~16~~ 14 The spent fuel ~~storage~~ pool boron concentration shall be ≥ ~~[2300]~~ 2000 ppm. ① ②

Applicability, DOC L01 APPLICABILITY: When fuel assemblies are stored in the spent fuel ~~storage~~ pool and a spent fuel ~~storage~~ pool verification has not been performed since the last movement of fuel assemblies in the spent fuel ~~storage~~ pool. ③

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
3.7.13 ACTION a — A. Spent ~~Fuel~~ fuel ~~storage~~ pool boron concentration not within limit.	--------------------NOTE------------------- LCO 3.0.3 is not applicable. ---	③
	A.1 Suspend movement of fuel assemblies in the spent fuel ~~storage~~ pool.	Immediately ③
	AND	
	A.2.1 Initiate action to restore spent fuel ~~storage~~ pool boron concentration to within limit.	Immediately ③
	OR	
DOC L01	A.2.2 Initiate action to perform a spent fuel ~~storage~~ pool verification.	Immediately ③

CTS

[Fuel ~~Storage~~ Pool Boron Concentration] Spent 2
3.7.~~16~~ 14 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
4.7.13.1	SR 3.7.~~16~~.1 14	Verify the spent fuel ~~storage~~ pool boron concentration is within limit.	~~[7 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	1 4

CTS

~~[~~Spent Fuel ~~Storage~~ Pool Boron Concentration~~]~~ 2
3.7.~~16~~ 14 1

3.7 PLANT SYSTEMS

3.7.~~16~~ 14 ~~[~~ Spent Fuel ~~Storage~~ Pool Boron Concentration ~~]~~ 1 2

3.7.13 LCO 3.7.~~16~~ 14 The spent fuel ~~storage~~ pool boron concentration shall be ≥ ~~[2300]~~ 2000 ppm. 1 2

Applicability, DOC L01 APPLICABILITY: When fuel assemblies are stored in the spent fuel ~~storage~~ pool and a spent fuel ~~storage~~ pool verification has not been performed since the last movement of fuel assemblies in the spent fuel ~~storage~~ pool. 3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent ~~Fuel~~ fuel ~~storage~~ pool boron concentration not within limit.	--------------------NOTE------------------- LCO 3.0.3 is not applicable. ---	
	A.1 Suspend movement of fuel assemblies in the spent fuel ~~storage~~ pool.	Immediately
	<u>AND</u>	
	A.2.1 Initiate action to restore spent fuel ~~storage~~ pool boron concentration to within limit.	Immediately
	<u>OR</u>	
	A.2.2 Initiate action to perform a spent fuel ~~storage~~ pool verification.	Immediately

3.7.13 ACTION a — 3 (Condition A); 3 (A.1); 3 (A.2.1); DOC L01 — 3 (A.2.2)

CTS

[Fuel ~~Storage~~ Pool Boron Concentration] Spent
3.7.~~16~~ 14

1 2

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
4.7.13.1	SR 3.7.~~16~~.1 14 Verify the spent fuel ~~storage~~ pool boron concentration is within limit.	~~[7 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

1 4

3 1

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JUSTIFICATION FOR DEVIATIONS
ITS 3.7.14, SPENT FUEL POOL BORON CONCENTRATION

1. Sequoyah Nuclear Plant (SQN) design does not include ISTS 3.7.12, "Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)" and ISTS 3.7.14, "Penetration Room Exhaust Air Cleanup System (PREACS)." Therefore, ISTS 3.7.16 has been renumbered as ITS 3.7.14. Additionally, the "Fuel Storage Pool Boron Concentration" has been changed to "Spent Fuel Pool Boron Concentration."

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

4. ISTS SR 3.7.16.1 (ITS SR 3.7.14.1) provides two options for controlling the Frequency of the Surveillance Requirement. SQN is proposing to control this Surveillance Frequency under the Surveillance Frequency Control Program.

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

B 3.7 PLANT SYSTEMS

B 3.7.~~16~~14 ~~[~~Spent Fuel ~~Storage~~ Pool Boron Concentration ~~]~~ 2 1

BASES

BACKGROUND

INSERT 1 ~~In the Maximum Density Rack (MDR) [(Refs. 1 and 2)] design, the spent fuel storage pool is divided into two separate and distinct regions which, for the purpose of criticality considerations, are considered as separate pools. [Region 1], with [336] storage positions, is designed to accommodate new fuel with a maximum enrichment of [4.65] wt% U-235, or spent fuel regardless of the discharge fuel burnup. [Region 2], with [2670] storage positions, is designed to accommodate fuel of various initial enrichments which have accumulated minimum burnups within the acceptable domain according to Figure [3.7.17-1], in the accompanying LCO.~~ Fuel assemblies ~~not meeting the criteria of Figure [3.7.17-1]~~ shall be stored in accordance with INSERT 2 ~~paragraph 4.3.1.1 in Section 4.3, Fuel Storage~~. 3

The water in the spent fuel ~~storage~~ pool normally contains soluble boron, which results in large subcriticality margins under actual operating conditions. However, the NRC guidelines, based upon the accident condition in which all soluble poison is assumed to have been lost, specify that the limiting k_{eff} of < 1.0 ~~0.95~~ be evaluated in the absence of soluble boron. Hence, the design of each region ~~both regions~~ is based on the use of unborated water, which maintains each region in a subcritical condition during normal operation with the regions fully loaded. The double contingency principle discussed in ANSI N-16.1-1975 and the April 1978 NRC letter (Ref. 4 ~~3~~) allows credit for soluble boron under other abnormal or accident conditions, since only a single accident need be considered at one time. For example, the most severe accident scenario is associated with the INSERT 3 ~~movement of fuel from [Region 1 to Region 2], and accidental misloading of a fuel assembly in [Region 2]. This could potentially increase the criticality of [Region 2]. To mitigate these postulated criticality related accidents, boron is dissolved in the pool water. Safe operation of the MDR~~ with no movement of assemblies may therefore be achieved by controlling the location of each assembly in accordance with LCO 3.7.15 ~~17, "Spent Fuel Assembly Storage."~~ Prior to movement of an assembly, it is necessary to perform SR 3.7.~~16~~14.1. 3 3 3 3 3

APPLICABLE SAFETY ANALYSES

Most accident conditions do not result in an increase in the activity of any of the ~~either of the two~~ regions. Examples of these accident conditions are the loss of cooling (reactivity increase with decreasing water density) and the dropping of a fuel assembly on the top of the rack. However, accidents can be postulated that could increase the reactivity. This increase in reactivity is unacceptable with unborated water in the storage pool. Thus, for these accident occurrences, the presence of soluble boron in the 3

3 **INSERT 1**

The spent fuel racks have been analyzed in accordance with the Holtec International methodology contained in Holtec Report HI - 992349 (Ref. 1). This methodology ensures that the spent fuel rack multiplication factor, k_{eff} is less than or equal to 0.95, as recommended by the NRC guidance contained in NRC Letter to All Power Reactor Licensees from B.K. Grimes, "OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications", April 14, 1978 and USNRC Internal Memorandum from L. Kopp, "Guidance On The Regulatory Requirements For Criticality Analysis Of Fuel Storage At Light-Water Reactor Power Plants", August 19, 1998 (Refs. 2 and 3). The codes, methods, and techniques contained in the methodology are used to satisfy the k_{eff} criterion. The spent fuel storage racks were analyzed using Westinghouse 17x17 Vantage 5H (V5H) fuel assemblies, with enrichments up to 4.95 (± 0.05) wt% U-235 utilizing credit for checkerboarding, burnup, soluble boron, integral fuel burnable absorbers, gadolinia, and cooling time to ensure that k_{eff} is maintained less than or equal to 0.95, including uncertainties, tolerances, and accident conditions. In addition, the Spent Fuel Pool k_{eff} is maintained <1.0, including uncertainties, tolerances on a 95/95 basis without any soluble boron. Calculations were performed to evaluate the reactivity of fuel types used at SQN. The results show that the Westinghouse 17x17 V5H fuel assembly exhibits the highest reactivity, thereby bounding all fuel types utilized and stored at SQN.

In the high density Spent Fuel Storage Rack design, the spent fuel pool is divided into three separate and distinct regions which, for the purpose of criticality considerations, are considered as separate pools. Region 1 is designed to accommodate new fuel with a maximum enrichment of 4.95 (± 0.05) wt% U-235, or spent fuel regardless of the discharge fuel burnup in a 1-in-4 checkerboard arrangement of 1 fresh assembly with 3 spent fuel assemblies with specified enrichment, burnup and cooling times. Region 2 is designed to accommodate fuel which has 4.95 (± 0.05) wt% initial enrichment burned to at least 30.27 megawatt days per kilogram uranium (MWD/KgU) (assembly average), or fuel of other enrichment with a burnup yielding an equivalent reactivity in the fuel racks. Region 3 is designed to accommodate fuel of 4.95 (± 0.05) wt% initial enrichment or fuel assemblies of any lower reactivity in a 2-out-of-4 checkerboard arrangement with water-filled cells.

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3 **INSERT 2**

LCO 3.7.15, "Spent Fuel Pool Storage."

3 **INSERT 3**

accidental mishandling of a fresh fuel assembly face adjacent to a fresh fuel assembly of Region 3. This could potentially increase the criticality of Region 3. To mitigate these postulated criticality related accidents, boron is dissolved in the pool water. The soluble boron concentration required to maintain $k_{eff} \leq 0.95$ under normal conditions is 300 ppm and 700 ppm under the most severe postulated fuel mis-location accident. Safe operation of the spent fuel storage racks

BASES

APPLICABLE SAFETY ANALYSES (continued)

spent fuel ~~storage~~ pool prevents criticality in each region ~~both regions~~. ~~The postulated accidents are basically of two types. A fuel assembly could be incorrectly transferred from [Region 1 to Region 2] (e.g., an unirradiated fuel assembly or an insufficiently depleted fuel assembly). The second type of postulated accidents is associated with a fuel assembly which is dropped adjacent to the fully loaded [Region 2] storage rack. This could have a small positive reactivity effect on [Region 2]. However, the negative reactivity effect of the soluble boron compensates for the increased reactivity caused by either one of the two postulated accident scenarios.~~ INSERT 4 The accident analyses are ~~is~~ provided in the UFSAR, Section 4.3.2.7 ~~[15.7.4]~~ (Ref. 6 ~~4~~).

The concentration of dissolved boron in the spent fuel ~~storage~~ pool satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

The spent fuel ~~storage~~ pool boron concentration is required to be ≥ 2000 ~~[2300]~~ ppm. The specified concentration of dissolved boron in the spent fuel ~~storage~~ pool preserves the assumptions used in the analyses of the potential critical accident scenarios as described in Reference 6 ~~4~~. This concentration of dissolved boron is the minimum required concentration for fuel assembly storage and movement within the spent fuel ~~storage~~ pool.

APPLICABILITY

This LCO applies whenever fuel assemblies are stored in the spent fuel ~~storage~~ pool, until a complete spent fuel ~~storage~~ pool verification has been performed following the last movement of fuel assemblies in the spent fuel ~~storage~~ pool. This LCO does not apply following the verification, since the verification would confirm that there are no misloaded fuel assemblies. With no further fuel assembly movements in progress, there is no potential for a misloaded fuel assembly or a dropped fuel assembly.

ACTIONS

A.1, A.2.1, and A.2.2

The Required Actions are modified by a Note indicating that LCO 3.0.3 does not apply.

When the concentration of boron in the spent fuel ~~storage~~ pool is less than required, immediate action must be taken to preclude the occurrence of an accident or to mitigate the consequences of an accident in progress. This is most efficiently achieved by immediately suspending the movement of fuel assemblies. The concentration of boron is restored simultaneously with suspending movement of fuel assemblies. Alternatively, beginning a verification of the spent fuel ~~storage~~ pool fuel locations, to ensure proper locations of the fuel, can be performed. However, prior to resuming movement of fuel assemblies, the concentration of boron must be restored. This does not preclude movement of a fuel assembly to a safe position.

3 **INSERT 4**

The most limiting postulated accident with respect to the storage configurations assumed in the spent fuel rack criticality analysis is the misplacement of a nominal 4.95 (± 0.05) wt% U-235 fuel assembly into an empty storage cell location in the Region 3 checkerboard storage arrangement.

The amount of soluble boron required to maintain $k_{eff} \leq 0.95$ due to either fuel misload accident is 700 ppm (Ref. 1).

A spent fuel boron dilution analysis was performed to ensure that sufficient time is available to detect and mitigate dilution of the spent fuel pool prior to exceeding the k_{eff} design basis limit of 0.95 (Ref. 5). The spent fuel pool boron dilution analysis concluded that an inadvertent or unplanned event that would result in a dilution of the spent fuel pool boron concentration from 2000 ppm to 700 ppm is not a credible event.

BASES

ACTIONS (continued)

If the LCO is not met while moving irradiated fuel assemblies in MODE 5 or 6, LCO 3.0.3 would not be applicable. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operation. Therefore, inability to suspend movement of fuel assemblies is not sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.7.~~16~~ 14.1

This SR verifies that the concentration of boron in the spent fuel ~~storage~~ pool is within the required limit. As long as this SR is met, the analyzed accidents are fully addressed. ~~[The 7 day Frequency is appropriate because no major replenishment of pool water is expected to take place over such a short period of time.~~

~~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. Callaway FSAR, Appendix 9.1A, "The Maximum Density Rack (MDR) Design Concept."~~

~~2. Description and Evaluation for Proposed Changes to Facility Operating Licenses DPR-39 and DPR-48 (Zion Power Station).]~~

INSERT 5

~~3~~ 4. Double contingency principle of ANSI N16.1-1975, as specified in the April 14, 1978 NRC letter (Section 1.2) and implied in the proposed revision to Regulatory Guide 1.13 (Section 1.4, Appendix A).

INSERT 6

~~4~~ 6. U FSAR, Section ~~[15.7.4]~~ 4.3.2.7.

3 **INSERT 5**

1. Stanely E. Turner (Holtec International), "Criticality Safety Analyses of Sequoyah Spent Fuel Racks with Alternative Arrangements," HI-992349.

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3 **INSERT 6**

5. K K Niyogi (Holtec International), "Boron Dilution Analysis," HI-992302.

B 3.7 PLANT SYSTEMS

B 3.7.~~16~~ 14 ~~[~~Fuel ~~Storage~~ Spent Pool Boron Concentration ~~]~~ 2 1

BASES

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BASES

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ACTIONS

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BASES

ACTIONS (continued)

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SR 3.7.~~16~~ 14 .1 2

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~~OR~~ 5

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~~-----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.~~
~~-----]~~ 6

REFERENCES

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~~2. Description and Evaluation for Proposed Changes to Facility Operating Licenses DPR-39 and DPR-48 (Zion Power Station).]~~ 1

INSERT 5

~~3~~ 4. Double contingency principle of ANSI N16.1-1975, as specified in the April 14, 1978 NRC letter (Section 1.2) and implied in the proposed revision to Regulatory Guide 1.13 (Section 1.4, Appendix A). 3

INSERT 6

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5. K K Niyogi (Holtec International), "Boron Dilution Analysis," HI-992302.

JUSTIFICATION FOR DEVIATIONS
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1. 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.

2. Sequoyah Nuclear Plant (SQN) design does not include ISTS B 3.7.12, "Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)" and ISTS B 3.7.14, "Penetration Room Exhaust Air Cleanup System (PREACS)." Therefore, ISTS B 3.7.16 has been renumbered as ITS B 3.7.14. Additionally, the "Fuel Storage Pool Boron Concentration" has been changed to "Spent Fuel Pool Boron Concentration."

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. Typographical/grammatical error corrected.

5. ISTS SR 3.7.16.1 (ITS SR 3.7.14.1) provides two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

6. 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.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.7.14, SPENT FUEL POOL BORON CONCENTRATION

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

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ATTACHMENT 15

ITS 3.7.15, SPENT FUEL POOL STORAGE

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

ITS A01 ITS 3.7.15

DESIGN FEATURES

5.6 FUEL STORAGE

CRITICALITY - SPENT FUEL

LCO 3.7.15 5.6.1.1 The spent fuel storage racks are designed for fuel enriched to 5 weight percent U-235 and shall be maintained with: A02

a. A k_{eff} less than critical when flooded with unborated water and a k_{eff} less than or equal to 0.95 when flooded with water containing 300 ppm soluble boron.*

b. A nominal 8.972 inch center-to-center distance between fuel assemblies placed in the storage racks.

See ITS 4.0

A02

c. Arrangements of one or more of three different arrays (Regions) or sub-arrays as illustrated in Figures 5.6-1 and 5.6-1a. These arrangements in the spent fuel storage pool have the following definitions:

Add proposed Applicability A02

Add proposed ACTION A M01

Add proposed SR 3.7.15.1 M02

LCO 3.7.15 1. Region 1 is designed to accommodate new fuel with a maximum enrichment of 4.95 ± 0.05 wt% U-235, (or spent fuel regardless of the fuel burnup), in a 1-in-4 checkerboard arrangement of 1 fresh assembly with 3 spent fuel assemblies ~~with enrichment-burnup and cooling times illustrated in Figure 5.6-2 and defined by the equations in Table 5.6-1. Cooling time is defined as the period since reactor shutdown at the end of the last operating cycle for the discharged spent fuel assembly. The presence of a removable, non-fissile insert such as a burnable poison rod assembly (BPRA) or either gadolinia or integral fuel burnable absorber (IFBA) in a fresh fuel assembly does not affect the applicability of Figure 5.6-2 or Table 5.6-1.~~

~~Two alternative storage arrays (or sub-arrays) are acceptable in Region 1 if the fresh fuel assemblies contain rods with either gadolinia or integral fuel burnable absorber (IFBA). For these types of assemblies, the minimum burnup of the spent fuel in the 1-of-4 sub-array are defined by the equations in Table 5.6-2.~~

~~Restrictions in Region 1~~

~~Any of the three sub-arrays illustrated in Figure 5.6-1a may be used in any combination provided that:~~

~~1) Each sub-array of 4 fuel assemblies includes, in addition to the fresh fuel assembly, 3 assemblies with enrichment and minimum burnup requirements defined by the equations in Tables 5.6-1 and 5.6-2, as appropriate.~~

~~2) The arrangement of Region 1 sub-arrays must not allow a configuration with fresh assemblies adjacent to each other.~~

~~3) If Region 1 arrays are used in conjunction with Region 2 or Region 3 arrangements (see below), the arrangements shall not allow fresh fuel assemblies to be adjacent to each other (see also Figure 5.6-1).~~

LA01

*For some accident conditions, the presence of dissolved boron in the pool water may be taken into account by applying the double contingency principle which requires two unlikely, independent, concurrent events to produce a criticality accident.

See ITS 4.0

5.6 FUEL STORAGE

LCO 3.7.15

2. Region 2 is designed to accommodate fuel of 4.95±0.05 wt% U-235 initial enrichment burned to at least 30.27 MWD/KgU (assembly average), or fuel of other enrichments with a burnup yielding an equivalent reactivity in the fuel racks. ~~The minimum required assembly average burnup in MWD/KgU and cooling time is given by the equations in Table 5.6-3 in terms of E, where E is the initial enrichment in the axial zone of highest enrichment (wt% U-235). The minimum required burnups are illustrated in Figure 5.6-3 in terms of the initial enrichment and cooling time.~~

~~Restrictions in Region 2~~

~~The following restrictions apply to the storage of spent fuel in the Region 2 cells:~~

~~1) The spent fuel shall conform to the minimum burnup requirements defined by the equations in Table 5.6-3. Linear interpolation between cooling times may be made if desired.~~

~~2) For the interface with Region 1 storage cells, fresh fuel in Region 1 shall not be stored adjacent to spent fuel assemblies in the Region 2 storage cells.~~

LA01

LCO 3.7.15

3. Region 3 is designed to accommodate fuel of 4.95±0.05 wt% U-235 initial enrichment (or fuel assemblies of any lower reactivity) in a 2-out-of-4 checkerboard arrangement with water-filled cells. ~~The water-filled cells shall not contain any components bearing any fissile material, but may accommodate miscellaneous items or equipment.~~

~~Restrictions in Region 3~~

~~1) For the interface between Region 1 and Region 3 storage regions, fresh fuel assemblies shall not be stored adjacent to each other.~~

~~2) If miscellaneous items or equipment are stored in the water cells of Region 3, the total volume of the miscellaneous items shall be no more than 75% of the storage cell volume.~~

~~3) No fuel rods, assemblies, or items containing fissile material shall be stored in the water cells of Region 3.~~

LA01

~~An empty cell is less reactive than any cell containing fuel and therefore may be used as a Region 1, Region 2, or Region 3 cell in any arrangement.~~

~~d. Region 2 array described above may be used in the 15 x 15 storage rack module in the cask loading area of the cask pit.~~

~~e. A nominal concentration of 2000 ppm boron in the pool water. This concentration of soluble boron provides a margin sufficient to allow timely detection of a boron dilution accident and corrective action before the minimum concentration (700 ppm) required to protect against the most severe postulated fuel handling accident or before the minimum concentration (300 ppm) required to maintain the storage configuration design basis (k_{eff} less than 0.95) is reached.~~

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5.6 FUEL STORAGE

CRITICALITY - NEW FUEL

5.6.1.2 The new fuel pit storage racks are designed for fuel enriched to 5.0 weight percent U-235 and shall be maintained with the arrangement of 146 storage locations shown in Figure 5.6-4. The cells shown as empty cells in Figure 5.6-4 shall have physical barriers installed to ensure that inadvertent loading of fuel assemblies into these locations does not occur. This configuration ensures k_{eff} will remain less than or equal to 0.95 when flooded with unborated water and less than or equal to 0.98 under optimum moderation conditions.

DRAINAGE

5.6.2 The spent fuel pit is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 722 ft.

CAPACITY

5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 2091 fuel assemblies. In addition, no more than 225 fuel assemblies will be stored in a rack module in the cask loading area of the cask pit.

See ITS 4.0

~~5.7 COMPONENT CYCLIC OR TRANSIENT LIMIT~~

~~5.7.1 DELETED~~

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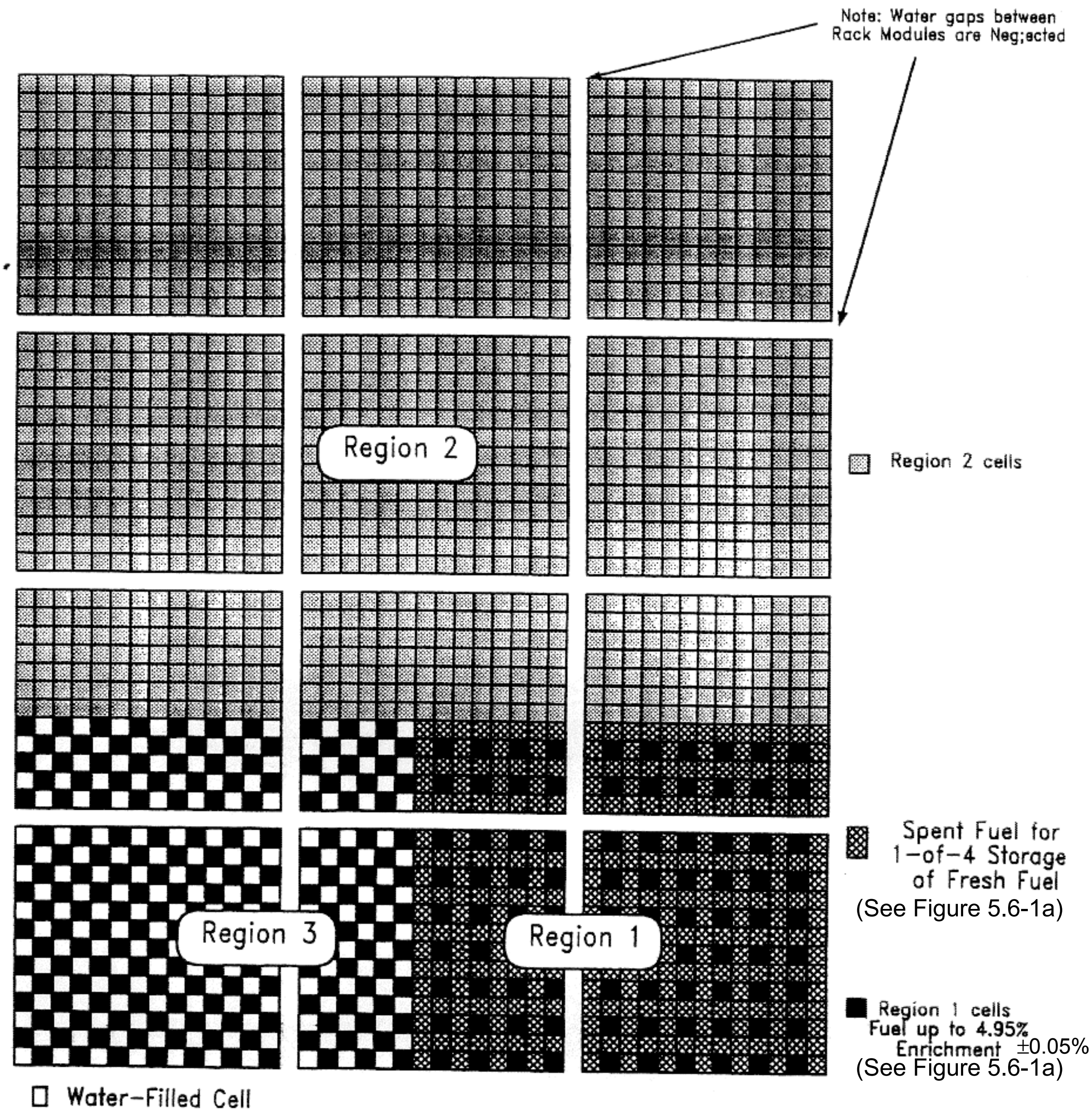
Figure 3.7.15-1



Note: The edges of the sketch above are not necessarily the edges of the pool. The Regions may appear anywhere in the pool and in any orientation, subject to the restriction in Design Feature 5.6.1.1.c.

Figure 5.6-1
Arrangements of Fuel Storage Regions in the Sequoyah Spent Fuel Storage Pool

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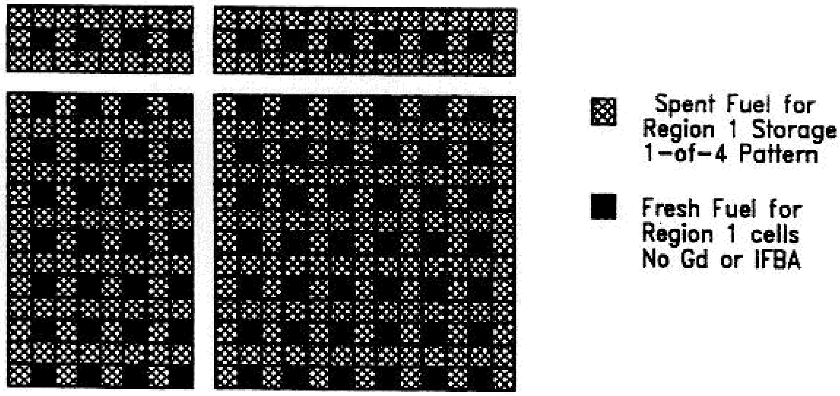
Figure 3.7.15-2



NOTE: WHEN CREDIT IS TAKEN FOR GADOLINIA OR IFBA RODS IN FRESH ASSEMBLIES THE SPENT FUEL ASSEMBLIES NEED NOT HAVE CONTAINED GADOLINIA OR IFBA RODS..

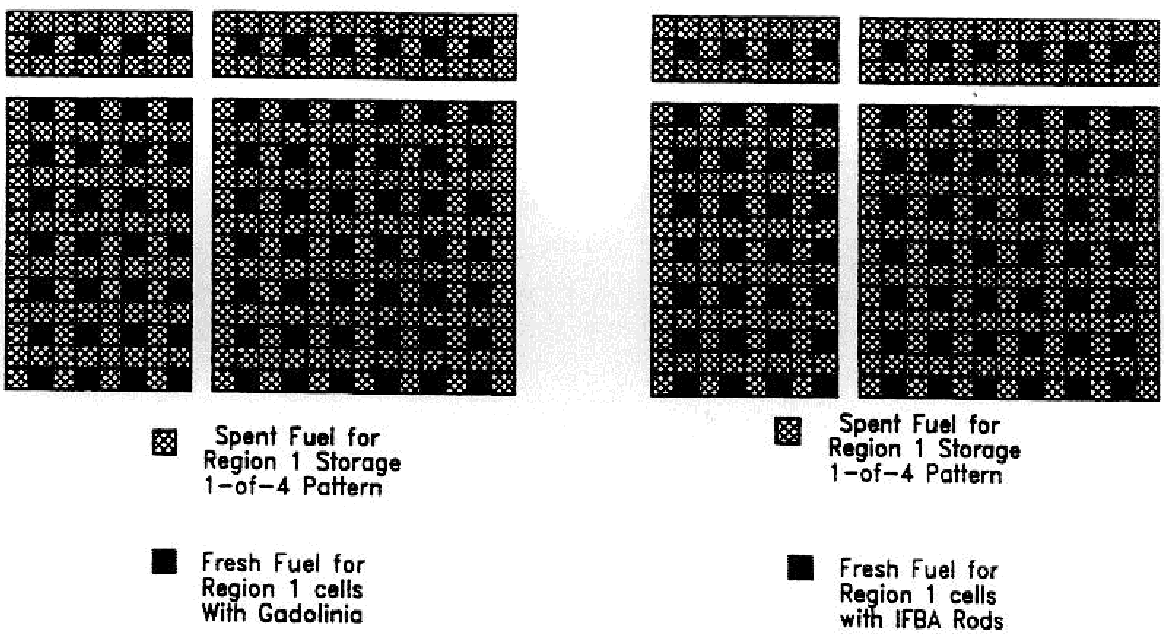


Figure 5.6-1a
Acceptable Spent Fuel Pool Loading Patterns for Checkerboard Storage of Fresh and Spent Fuel Assemblies - Example

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Figure 3.7.15-3

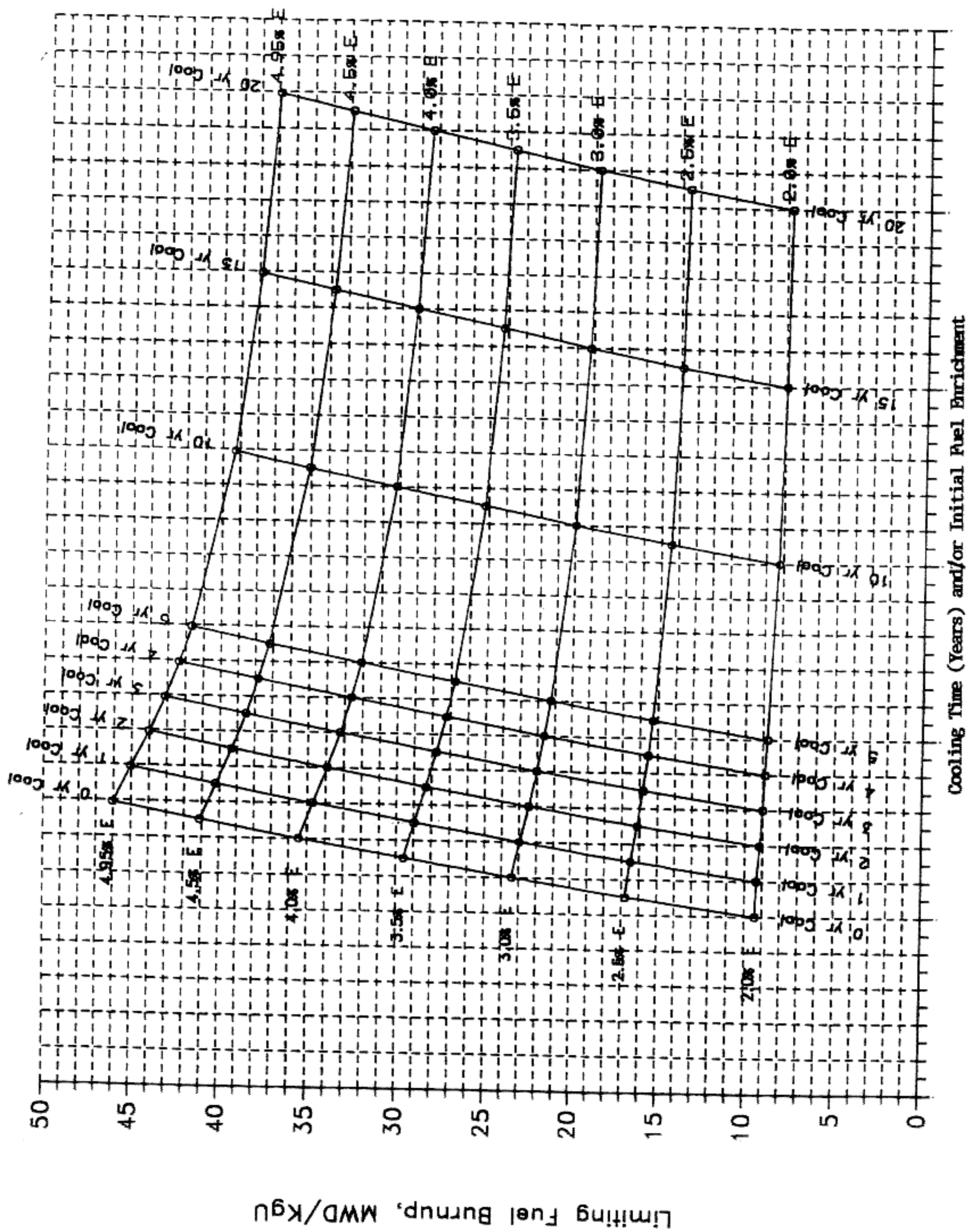

Fig. 5.6-2 3-Dimensional Plot of Minimum Fuel Burnups in Region 1 for Enrichments and/or Cooling Times

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Figure 3.7.15-4

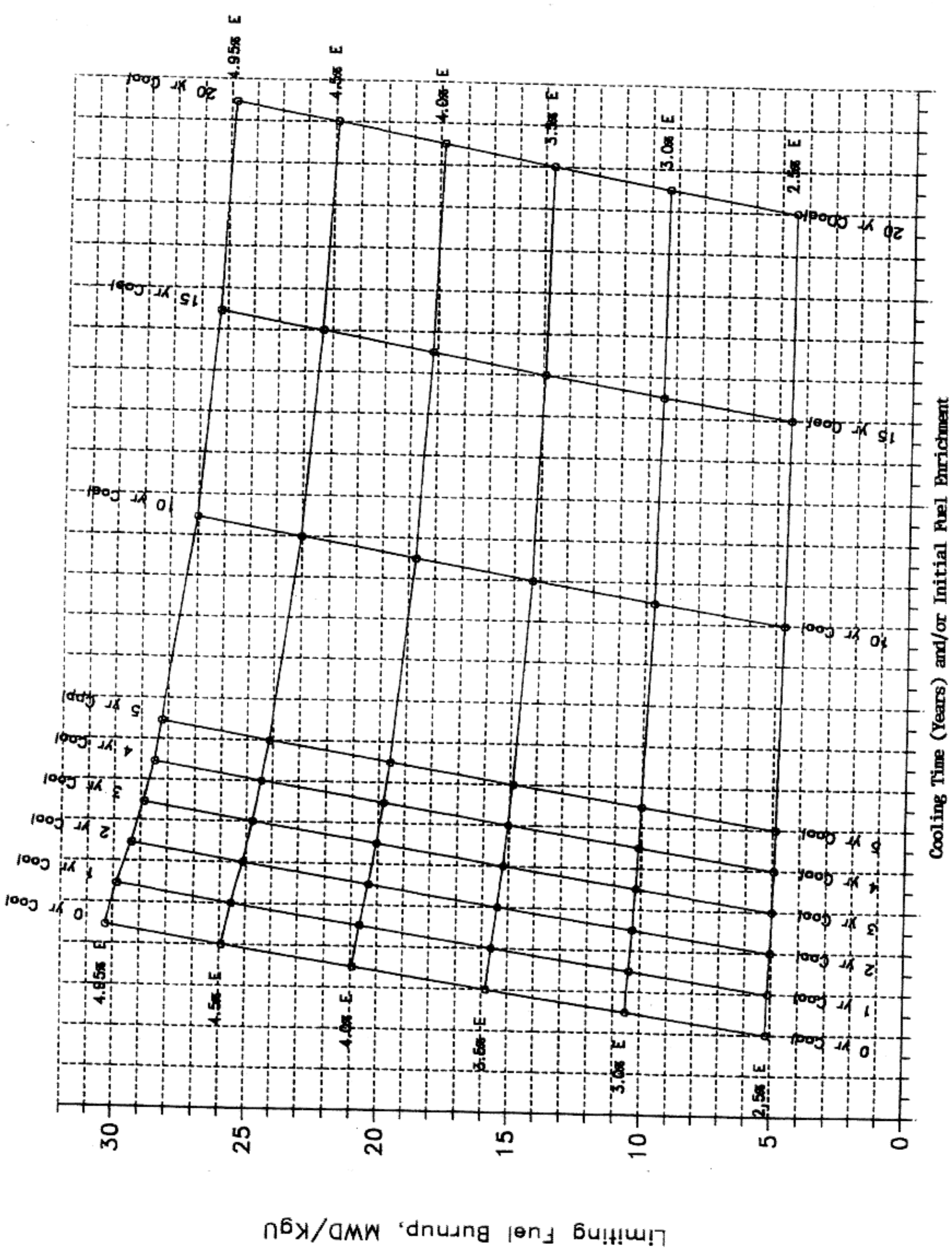

Fig. 5.6-3 3- Dimensional Plot of Minimum Fuel Burnups in Region 2 for Enrichments and Cooling Times

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Table 3.7.15-1

Table 5.6-1
Region 1 Storage Burnup Restrictions: Checkerboard of 1 Fresh Fuel Assembly and 3 Spent Fuel Assemblies (Without Gadolinium or IFBA Rods)

For Zero Year Cooling Time
Bu (limit) = - 28.1868 + 23.0765 x E – 2.46264 x E^2 + 0.167868 x E^3
For One Year Cooling Time
Bu (limit) = - 27.3317 + 22.5087 x E – 2.40586 x E^2 + 0.164207 x E^3
For Two Years Cooling Time
Bu (limit) = -26.4693 + 21.8404 x E – 2.31873 x E^2 + 0.158218 x E^3
For Three Years Cooling Time
Bu (limit) = -25.7404 + 21.2659 x E – 2.24287 x E^2 + 0.153018 x E^3
For Four Years Cooling Time
Bu (limit) = - 25.1367 + 20.7910 x E –2.18484 x E^2 + 0.1499363 x E^3
For Five Years Cooling Time
Bu (limit) = - 24.5981 + 20.3568 x E – 2.12719 x E^2 + 0.145431 x E^3
For Ten Years Cooling Time
Bu (limit) = - 23.2050 + 19.2969 x E – 2.06993 x E^2 + 0.145875 x E^3
For Fifteen Years Cooling Time
Bu (limit) = -22.6098 + 18.8544 x E – 2.08617 x E^2 + 0.150473 x E^3
For Twenty Years Cooling Time
Bu (limit) = - 22.3017 + 18.622 x E – 2.11206 x E^2 + 0.15467 x E^3

Table 3.7.15-2

Table 5.6-2
Region 1 Storage Burnup Restrictions with Gadolinium or IFBA

With Gadolinium Credit: Checkerboard of 1 Fresh Fuel Assembly with 3 Spent Fuel Assemblies

Zero Year Cooling Time, 0 Gadolinia Rods Bu (limit) = $- 28.1868 + 23.0765 \times E - 2.46264 \times E^2 + 0.167868 \times E^3$
Zero Year Cooling Time, 4 Gadolinia Rods Bu (limit) = $- 28.4012 + 22.0062 \times E - 2.19268 \times E^2 + 0.143601 \times E^3$
Zero Year Cooling Time, 8 Gadolinia Rods Bu (limit) = $- 31.4262 + 22.0768 \times E - 2.38845 \times E^2 + 0.164888 \times E^3$

Note: If more that 8 Gadolinium rods per assembly, use the 8 rod correlation

With IFBA Credit: Checkerboard of 1 Fresh Fuel Assembly with 3 Spent Fuel Assemblies

Zero Year Cooling Time, 0 IFBA Rods Bu (limit) = $- 28.1868 + 23.0765 \times E - 2.46264 \times E^2 + 0.167868 \times E^3$
Zero Year Cooling Time, 16 IFBA Rods Bu (limit) = $- 28.5048 + 21.6411 \times E - 2.15262 \times E^2 + 0.140904 \times E^3$
Zero Year Cooling Time, 32 IFBA Rods Bu (limit) = $- 31.0949 + 22.0435 \times E - 2.36088 \times E^2 + 0.162229 \times E^3$
Zero Year Cooling Time, 48 IFBA Rods Bu (limit) = $- 33.1342 + 22.3999 \times E - 2.55367 \times E^2 + 0.18082 \times E^3$
Zero Year Cooling Time, 64 IFBA Rods Bu (limit) = $- 36.0468 + 24.1492 \times E - 3.11807 \times E^2 + 0.233987 \times E^3$

Note: If more that 64 IFBA rods per assembly, use the correlation for 64 IFBA rods

Table 5.6-3
Region 2 Storage Burnup Restrictions

Zero Cooling Time
Bu (limit) = - 23.8702 + 12.3026 x E - 0.275672 x E^2
1 Year Cooling Time
Bu (limit) = - 23.6854 + 12.2384 x E - 0.287498 x E^2
2 Years Cooling Time
Bu (limit) = - 23.499 + 12.1873 x E - 0.305988 x E^2
3 Years Cooling Time
Bu (limit) = - 23.3124 + 12.1249 x E - 0.319566 x E^2
4 Years Cooling Time
Bu (limit) = - 23.1589 + 12.0748 x E - 0.332212 x E^2
5 Years Cooling Time
Bu (limit) = - 22.6375 + 11.7906 x E - 0.307623 x E^2
10 Years Cooling Time
Bu (limit) = - 21.7256 + 11.3660 x E – 0.31029 x E^2
15 Years Cooling Time
Bu (limit) = - 21.1160 + 11.0663 x E - 0.306231 x E^2
20 Years Cooling Time
Bu (limit) = - 20.6055 + 10.7906 x E - 0.29291 x E^2

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ITS A01 ITS 3.7.15

DESIGN FEATURES

5.6 FUEL STORAGE

CRITICALITY - SPENT FUEL

LCO 3.7.15 5.6.1.1 The spent fuel storage racks are designed for fuel enriched to 5 weight percent U-235 and shall be maintained with: A02

a. A k_{eff} less than critical when flooded with unborated water and a k_{eff} less than or equal to 0.95 when flooded with water containing 300 ppm soluble boron.* See ITS 4.0

b. A nominal 8.972 inch center-to-center distance between fuel assemblies placed in the storage racks.

c. Arrangements of one or more of three different arrays (Regions) or sub-arrays as illustrated in Figures 5.6-1 and 5.6-1a. These arrangements in the spent fuel storage pool have the following definitions: A02

Add proposed Applicability A02

Add proposed ACTION A M01

Add proposed SR 3.7.15.1 M02

LCO 3.7.15 1. Region 1 is designed to accommodate new fuel with a maximum enrichment of 4.95 ± 0.05 wt% U-235, (or spent fuel regardless of the fuel burnup), in a 1-in-4 checkerboard arrangement of 1 fresh assembly with 3 spent fuel assemblies ~~with enrichment-burnup and cooling times illustrated in Figure 5.6-2 and defined by the equations in Table 5.6-1. Cooling time is defined as the period since reactor shutdown at the end of the last operating cycle for the discharged spent fuel assembly. The presence of a removable, non-fissile insert such as a burnable poison rod assembly (BPRA) or either gadolinia or integral fuel burnable absorber (IFBA) in a fresh fuel assembly does not affect the applicability of Figure 5.6-2 or Table 5.6-1.~~

~~Two alternative storage arrays (or sub-arrays) are acceptable in Region 1 if the fresh fuel assemblies contain rods with either gadolinia or integral fuel burnable absorber (IFBA). For these types of assemblies, the minimum burnup of the spent fuel in the 1-of-4 sub-array are defined by the equations in Table 5.6-2.~~

~~Restrictions in Region 1~~

~~Any of the three sub-arrays illustrated in Figure 5.6-1a may be used in any combination provided that:~~ LA01

~~1) Each sub-array of 4 fuel assemblies includes, in addition to the fresh fuel assembly, 3 assemblies with enrichment and minimum burnup requirements defined by the equations in Tables 5.6-1 and 5.6-2, as appropriate.~~

~~2) The arrangement of Region 1 sub-arrays must not allow a configuration with fresh assemblies adjacent to each other.~~

~~3) If Region 1 arrays are used in conjunction with Region 2 or Region 3 arrangements (see below), the arrangements shall not allow fresh fuel assemblies to be adjacent to each other (see also Figure 5.6-1).~~

---

*For some accident conditions, the presence of dissolved boron in the pool water may be taken into account by applying the double contingency principle which requires two unlikely, independent, concurrent events to produce a criticality accident. See ITS 4.0

5.6 FUEL STORAGE

LCO 3.7.15 2. Region 2 is designed to accommodate fuel of 4.95±0.05 wt% U-235 initial enrichment burned to at least 30.27 MWD/KgU (assembly average), or fuel of other enrichments with a burnup yielding an equivalent reactivity in the fuel racks. ~~The minimum required assembly average burnup in MWD/KgU and cooling time is given by the equations in Table 5.6-3 in terms of E, where E is the initial enrichment in the axial zone of highest enrichment (wt% U-235). The minimum required burnups are illustrated in Figure 5.6-3 in terms of the initial enrichment and cooling time.~~

~~Restrictions in Region 2~~

~~The following restrictions apply to the storage of spent fuel in the Region 2 cells:~~

LA01

~~1) The spent fuel shall conform to the minimum burnup requirements defined by the equations in Table 5.6-3. Linear interpolation between cooling times may be made if desired.~~

~~2) For the interface with Region 1 storage cells, fresh fuel in Region 1 shall not be stored adjacent to spent fuel assemblies in the Region 2 storage cells.~~

LCO 3.7.15 3. Region 3 is designed to accommodate fuel of 4.95±0.05 wt% U-235 initial enrichment (or fuel assemblies of any lower reactivity) in a 2-out-of-4 checkerboard arrangement with water-filled cells. ~~The water-filled cells shall not contain any components bearing any fissile material, but may accommodate miscellaneous items or equipment.~~

~~Restrictions in Region 3~~

~~1) For the interface between Region 1 and Region 3 storage regions, fresh fuel assemblies shall not be stored adjacent to each other.~~

~~2) If miscellaneous items or equipment are stored in the water cells of Region 3, the total volume of the miscellaneous items shall be no more than 75% of the storage cell volume.~~

~~3) No fuel rods, assemblies, or items containing fissile material shall be stored in the water cells of Region 3.~~

~~An empty cell is less reactive than any cell containing fuel and therefore may be used as a Region 1, Region 2, or Region 3 cell in any arrangement.~~

LA01

~~d. Region 2 array described above may be used in the 15 x 15 storage rack module in the cask loading area of the cask pit.~~

~~e. A nominal concentration of 2000 ppm boron in the pool water. This concentration of soluble boron provides a margin sufficient to allow timely detection of a boron dilution accident and corrective action before the minimum concentration (700 ppm) required to protect against the most severe postulated fuel handling accident or before the minimum concentration (300 ppm) required to maintain the storage configuration design basis (k_{eff} less than 0.95) is reached.~~

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DESIGN FEATURES

5.6 FUEL STORAGE

CRITICALITY - NEW FUEL

5.6.1.2 The new fuel pit storage racks are designed for fuel enriched to 5.0 weight percent U-235 and shall be maintained with the arrangement of 146 storage locations shown in Figure 5.6-4. The cells shown as empty cells in Figure 5.6-4 shall have physical barriers installed to ensure that inadvertent loading of fuel assemblies into these locations does not occur. This configuration ensures k_{eff} will remain less than or equal to 0.95 when flooded with unborated water and less than or equal to 0.98 under optimum moderation conditions.

See ITS 4.0

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 722 ft.

CAPACITY

5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 2091 fuel assemblies. In addition, no more than 225 fuel assemblies will be stored in a rack module in the cask loading area of the cask pit.

~~5.7 COMPONENT CYCLIC OR TRANSIENT LIMIT~~

~~5.7.1 DELETED~~

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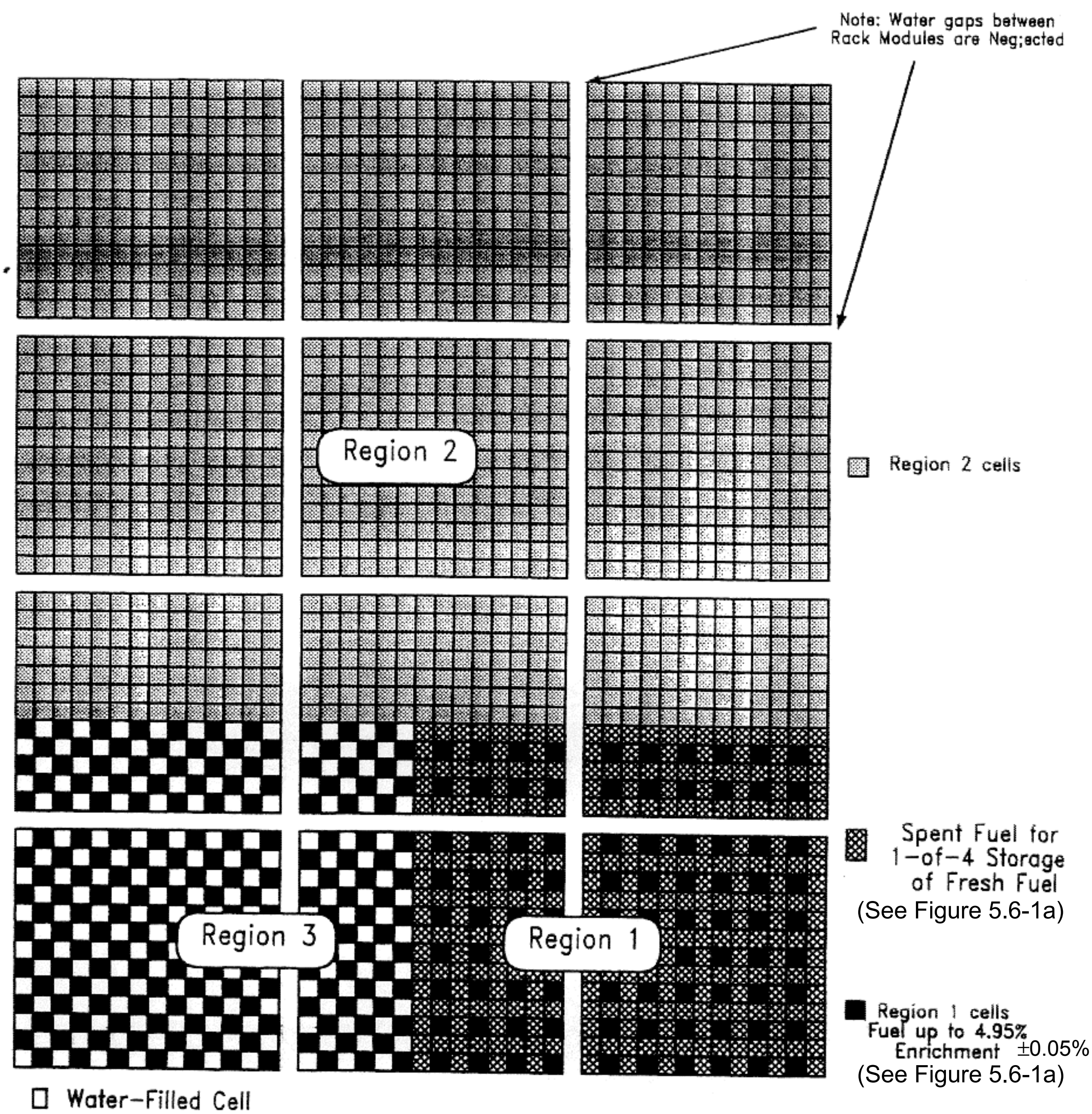
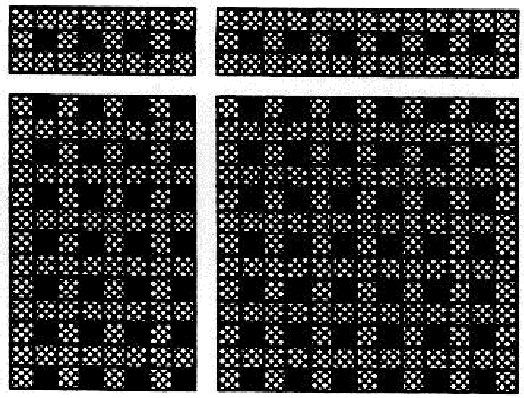
Figure 3.7.15-1



Note: The edges of the sketch above are not necessarily the edges of the pool. The Regions may appear anywhere in the pool and in any orientation, subject to the restriction in Design Feature 5.6.1.1.c.

Figure 5.6-1
Arrangements of Fuel Storage Regions in the Sequoyah Spent Fuel Storage Pool

Figure 3.7.15-2



NOTE: WHEN CREDIT IS TAKEN FOR GADOLINIA OR IFBA RODS IN FRESH ASSEMBLIES THE SPENT FUEL ASSEMBLIES NEED NOT HAVE CONTAINED GADOLINIA OR IFBA RODS..

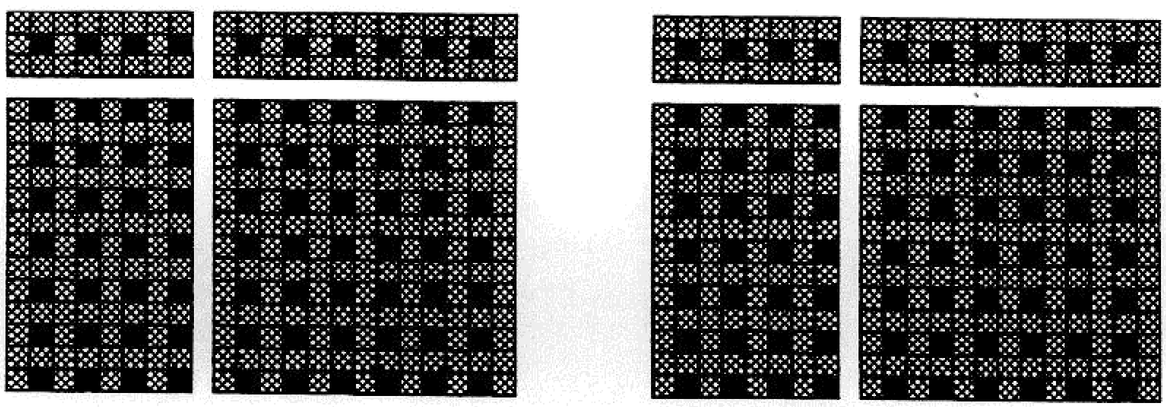


Figure 5.6-1a
Acceptable Spent Fuel Pool Loading Patterns for Checkerboard Storage of Fresh and Spent Fuel Assemblies - Example

Figure 3.7.15-3

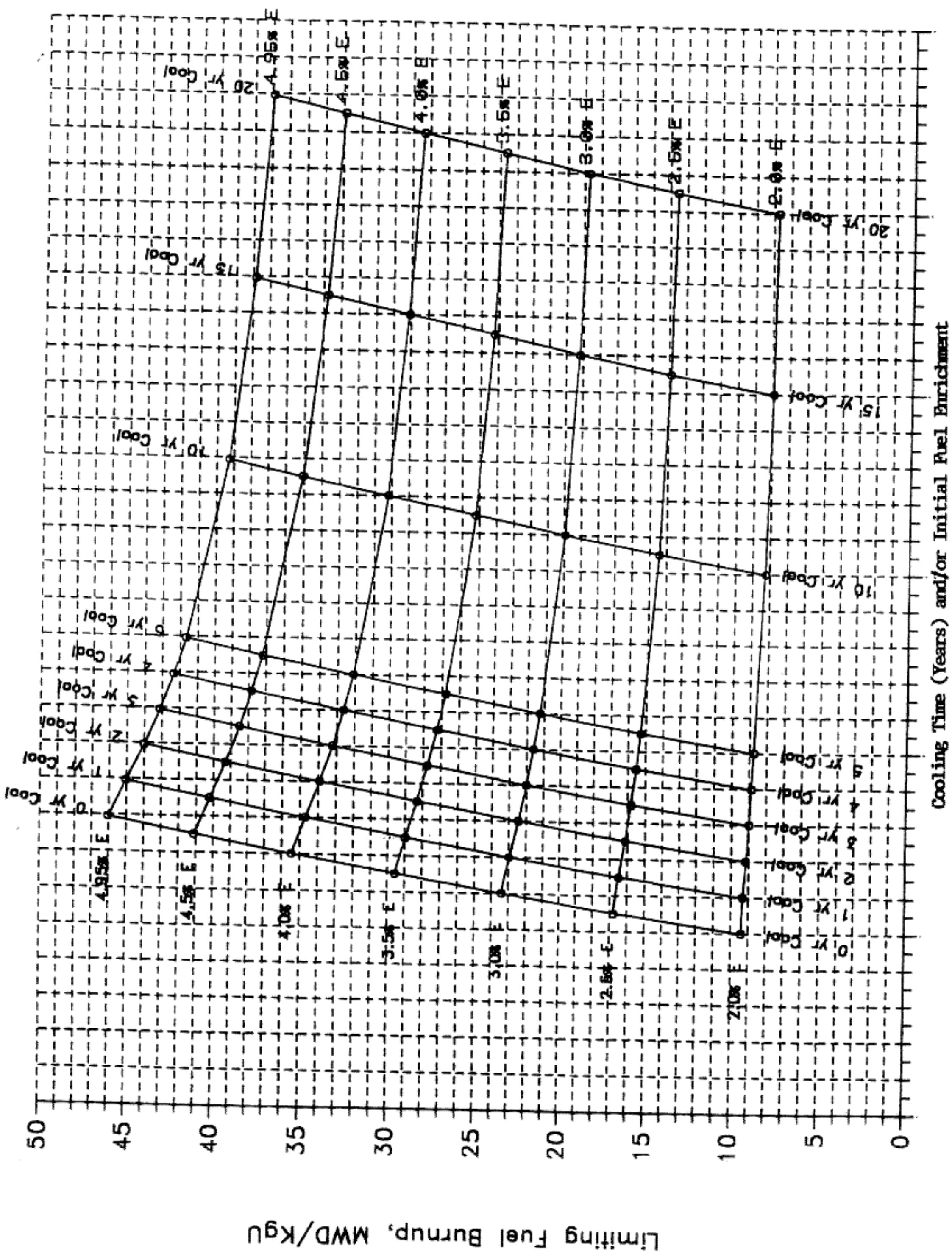


Fig. 5.6-2 3-Dimensional Plot of Minimum Fuel Burnups in Region 1 for Enrichments and/or Cooling Times

Figure 3.7.15-4

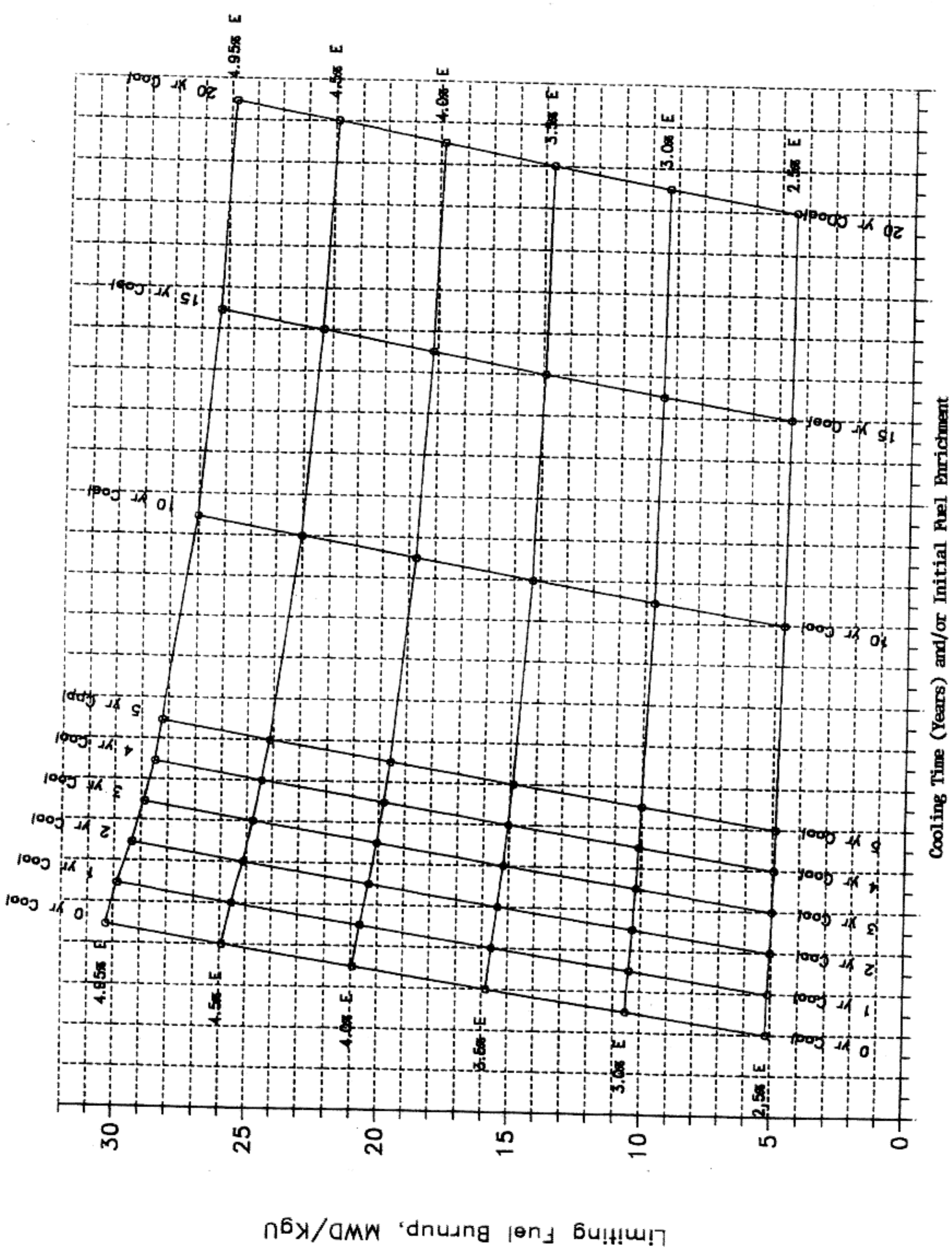


Fig. 5.6-3 3- Dimensional Plot of Minimum Fuel Burnups in Region 2 for Enrichments and Cooling Times

Table 3.7.15-1

Table 5.6-1
Region 1 Storage Burnup Restrictions: Checkerboard of 1 Fresh
Fuel Assembly and 3 Spent Fuel Assemblies (Without Gadolinium or IFBA Rods)

For Zero Year Cooling Time
Bu (limit) = - 28.1868 + 23.0765 x E – 2.46264 x E^2 + 0.167868 x E^3
For One Year Cooling Time
Bu (limit) = - 27.3317 + 22.5087 x E – 2.40586 x E^2 + 0.164207 x E^3
For Two Years Cooling Time
Bu (limit) = -26.4693 + 21.8404 x E – 2.31873 x E^2 + 0.158218 x E^3
For Three Years Cooling Time
Bu (limit) = -25.7404 + 21.2659 x E – 2.24287 x E^2 + 0.153018 x E^3
For Four Years Cooling Time
Bu (limit) = - 25.1367 + 20.7910 x E –2.18484 x E^2 + 0.1499363 x E^3
For Five Years Cooling Time
Bu (limit) = - 24.5981 + 20.3568 x E – 2.12719 x E^2 + 0.145431 x E^3
For Ten Years Cooling Time
Bu (limit) = - 23.2050 + 19.2969 x E – 2.06993 x E^2 + 0.145875 x E^3
For Fifteen Years Cooling Time
Bu (limit) = -22.6098 + 18.8544 x E – 2.08617 x E^2 + 0.150473 x E^3
For Twenty Years Cooling Time
Bu (limit) = - 22.3017 + 18.622 x E – 2.11206 x E^2 + 0.15467 x E^3

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Table 3.7.15-2

Table 5.6-2
Region 1 Storage Burnup Restrictions with Gadolinium or IFBA

With Gadolinium Credit: Checkerboard of 1 Fresh Fuel Assembly with 3 Spent Fuel Assemblies

Zero Year Cooling Time, 0 Gadolinia Rods
Bu (limit) = $-28.1868 + 23.0765 \times E - 2.46264 \times E^2 + 0.167868 \times E^3$
Zero Year Cooling Time, 4 Gadolinia Rods
Bu (limit) = $-28.4012 + 22.0062 \times E - 2.19268 \times E^2 + 0.143601 \times E^3$
Zero Year Cooling Time, 8 Gadolinia Rods
Bu (limit) = $-31.4262 + 22.0768 \times E - 2.38845 \times E^2 + 0.164888 \times E^3$

Note: If more that 8 Gadolinium rods per assembly, use the 8 rod correlation

With IFBA Credit: Checkerboard of 1 Fresh Fuel Assembly with 3 Spent Fuel Assemblies

Zero Year Cooling Time, 0 IFBA Rods
Bu (limit) = $-28.1868 + 23.0765 \times E - 2.46264 \times E^2 + 0.167868 \times E^3$
Zero Year Cooling Time, 16 IFBA Rods
Bu (limit) = $-28.5048 + 21.6411 \times E - 2.15262 \times E^2 + 0.140904 \times E^3$
Zero Year Cooling Time, 32 IFBA Rods
Bu (limit) = $-31.0949 + 22.0435 \times E - 2.36088 \times E^2 + 0.162229 \times E^3$
Zero Year Cooling Time, 48 IFBA Rods
Bu (limit) = $-33.1342 + 22.3999 \times E - 2.55367 \times E^2 + 0.18082 \times E^3$
Zero Year Cooling Time, 64 IFBA Rods
Bu (limit) = $-36.0468 + 24.1492 \times E - 3.11807 \times E^2 + 0.233987 \times E^3$

Note: If more that 64 IFBA rods per assembly, use the correlation for 64 IFBA rods

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Table 3.7.15-3

Table 5.6-3
Region 2 Storage Burnup Restrictions

Zero Cooling Time
Bu (limit) = - 23.8702 + 12.3026 x E - 0.275672 x E^2
1 Year Cooling Time
Bu (limit) = - 23.6854 + 12.2384 x E - 0.287498 x E^2
2 Years Cooling Time
Bu (limit) = - 23.499 + 12.1873 x E - 0.305988 x E^2
3 Years Cooling Time
Bu (limit) = - 23.3124 + 12.1249 x E - 0.319566 x E^2
4 Years Cooling Time
Bu (limit) = - 23.1589 + 12.0748 x E - 0.332212 x E^2
5 Years Cooling Time
Bu (limit) = - 22.6375 + 11.7906 x E - 0.307623 x E^2
10 Years Cooling Time
Bu (limit) = - 21.7256 + 11.3660 x E – 0.31029 x E^2
15 Years Cooling Time
Bu (limit) = - 21.1160 + 11.0663 x E - 0.306231 x E^2
20 Years Cooling Time
Bu (limit) = - 20.6055 + 10.7906 x E - 0.29291 x E^2

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DISCUSSION OF CHANGES
ITS 3.7.15, SPENT FUEL POOL STORAGE

ADMINISTRATIVE CHANGES

A01 In the conversion of the Sequoyah Nuclear Plant (SQN) 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. 4.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 5.6.1.1 states, in part, the spent fuel storage racks are designed for fuel enrichment to 5 weight percent U-235 and shall be maintained with an arrangement of one or more of three different arrays (Regions) or sub-arrays as illustrated in Figures 5.6-1 and 5.6-1a. ITS LCO 3.7.15 requires, in part, that the initial enrichment and burnup of each fuel assembly stored in Regions 1 through 3 shall be in accordance with Figures 3.7.15-1 through 3.7.15-4 and Tables 3.7.15-1 through 3.7.15-3. Furthermore, a new Applicability has been added commensurate with ITS LCO 3.7.15, stating that the LCO is applicable whenever any fuel assembly is stored in the spent fuel pool. This changes the CTS by moving the design criteria for Regions 1 through 3 to an explicit LCO and by adding an Applicability statement to address when the spent fuel pool storage requirements are required.

The purpose of CTS 5.6.1.1 is to provide the design criteria that define the spent fuel pool regions for storage of spent fuel assemblies to preserve the assumptions in the spent fuel pool criticality analysis. Controlling the locations of the spent fuel assemblies stored in the spent fuel pool provides assurance that no fuel assemblies have been inadvertently misplaced in the spent fuel pool. This change is acceptable because the current requirement implies that it is applicable when fuel is stored in the spent fuel pool. This change is designated as an administrative because it does not result in any technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 5.6.1.1 does not provide ACTIONS to take when the spent fuel pool storage requirements are not met. When the spent fuel pool storage requirements are not met, ITS 3.7.15, ACTION A requires the immediate initiation of action to move the non-complying fuel assembly to an acceptable location. This changes the CTS by providing specific ACTIONS when the spent fuel pool storage requirements are not met.

The purpose of CTS 5.6.1.1 is to ensure the spent fuel pool storage requirements are met to maintain the required subcriticality margin. ITS 3.7.15, ACTION A provides an action to restore the LCO requirement by immediately initiating action to move the non-complying fuel assembly to an acceptable location. The proposed Required Action reflects the importance of maintaining the spent fuel

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DISCUSSION OF CHANGES
ITS 3.7.15, SPENT FUEL POOL STORAGE

pool storage requirements. This change is acceptable, because the Required Action is used to establish remedial measures that must be taken in response to the degraded condition in order to minimize risk associated with continued operation. This change is designated as a more restrictive, because a new proposed ACTION has been added.

M02 CTS 5.6.1.1 does not provide a Surveillance Requirement for spent fuel pool. ITS SR 3.7.15.1 requires verification by administrative means that the initial burnup and fuel assembly is in accordance with Figures 3.7.15-1 through 3.7.15-4 and Tables 3.7.15-1 through 3.7.15-3. This changes the CTS by incorporating the requirements of ITS SR 3.7.15.1.

The safety related function of the spent fuel pool storage is to assure that k_{eff} is less than critical when flooded with unborated water and a k_{eff} less than or equal to 0.95 when flooded with water containing 300 ppm soluble boron. This change is acceptable because the proposed SR provides assurance that fuel assembly storage will be controlled in accordance with the assumptions of the spent fuel pool criticality analysis. This change is designated as more restrictive because it adds a new Surveillance Requirement to the CTS.

<u>RELOCATED SPECIFICATIONS</u>

None

<u>REMOVED DETAIL CHANGES</u>

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 5.6.1.1 contains details on the arrangement of the spent fuel pool and restrictions for storing fuel in each of the three regions of the spent fuel pool. ITS 3.7.15 does not contain these details. This changes the CTS by removing the details on the arrangement of the spent fuel pool and restrictions for storing fuel in each of the three regions of the spent fuel pool from the CTS to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements for storing fuel in the Spent Fuel Pool based on combinations of initial enrichment and burnup. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

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DISCUSSION OF CHANGES
ITS 3.7.15, SPENT FUEL POOL STORAGE

LESS RESTRICTIVE CHANGES

None

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

CTS

~~[~~Spent Fuel Pool Storage~~]~~ 1 2
3.7.~~17~~ 15

3.7 PLANT SYSTEMS

3.7.~~17~~ 15 ~~[~~ Spent Fuel Pool Storage ~~]~~ 2 1

5.6.1.1, 5.6.1.1.c — LCO 3.7.~~17~~ 15 The combination of initial enrichment and burnup of each fuel assembly stored in ~~[Region 2] shall be within the Acceptable [Burnup Domain] of~~ INSERT 1 Figure s 3.7.~~17~~ 15 -1 ~~or in accordance with Specification 4.3.1.1~~ INSERT 2. 2 1 2 3

DOC A02 — APPLICABILITY: Whenever any fuel assembly is stored in ~~[Region 2]~~ Regions 1 through 3 of the spent fuel storage pool. 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC M01 A. Requirements of the LCO not met.	A.1 --------------NOTE-------------- LCO 3.0.3 is not applicable. ------------------------------------- Initiate action to move the noncomplying fuel assembly ~~from [Region 2]~~ to an acceptable location.	Immediately 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
DOC M02 SR 3.7.~~17~~ 15 .1 Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure s 3.7.~~17~~-1 through 3.7.15-4 and Tables 3.7.15-1 through 3.7.15-3 ~~or Specification 4.3.1.1~~.	Prior to storing the fuel assembly in ~~[Region 2]~~ Regions 1 through 3 2 3 1

1 INSERT 1

Regions 1 through 3 shall be in accordance with

3 INSERT 2

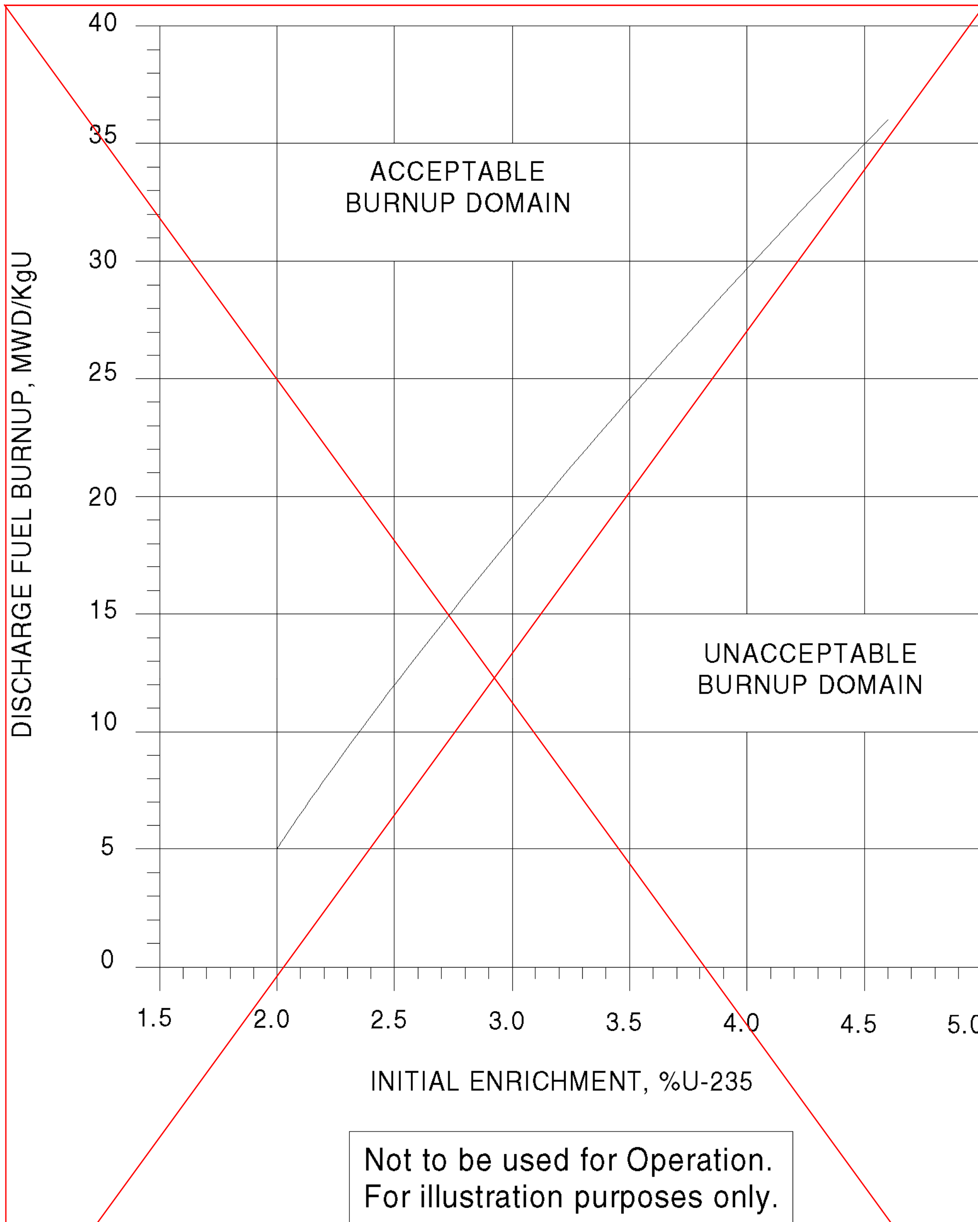
through 3.7.15-4 and Tables 3.7.15-1 through 3.7.15-3 in accordance with the following:

5.6.1.1.c.1 a. Region 1 arrays consist of new fuel with a maximum enrichment of 4.95 (± 0.05) wt% U-235, (or spent fuel regardless of the fuel burnup), in a 1-in-4 checkerboard arrangement of 1 fresh assembly with 3 spent fuel assemblies.

5.6.1.1.c.2 b. Region 2 arrays consist of fuel of 4.95 (± 0.05) wt% U-235 initial enrichment burned to at least 30.27 megawatt days per kilo gram uranium (MWD/KgU) (assembly average), or fuel of other enrichments with a burnup yielding an equivalent reactivity in the fuel racks.

5.6.1.1.c.3 c. Region 3 arrays consist of fuel of 4.95 (± 0.05) wt% U-235 initial enrichment (or fuel assemblies of any lower reactivity) in a 2-out-of-4 checkerboard arrangement with water-filled cells.

1
2



INSERT 3
3

Figure 3.7.17-1 (page 1 of 1)
Fuel Assembly Burnup Limits in Region 2

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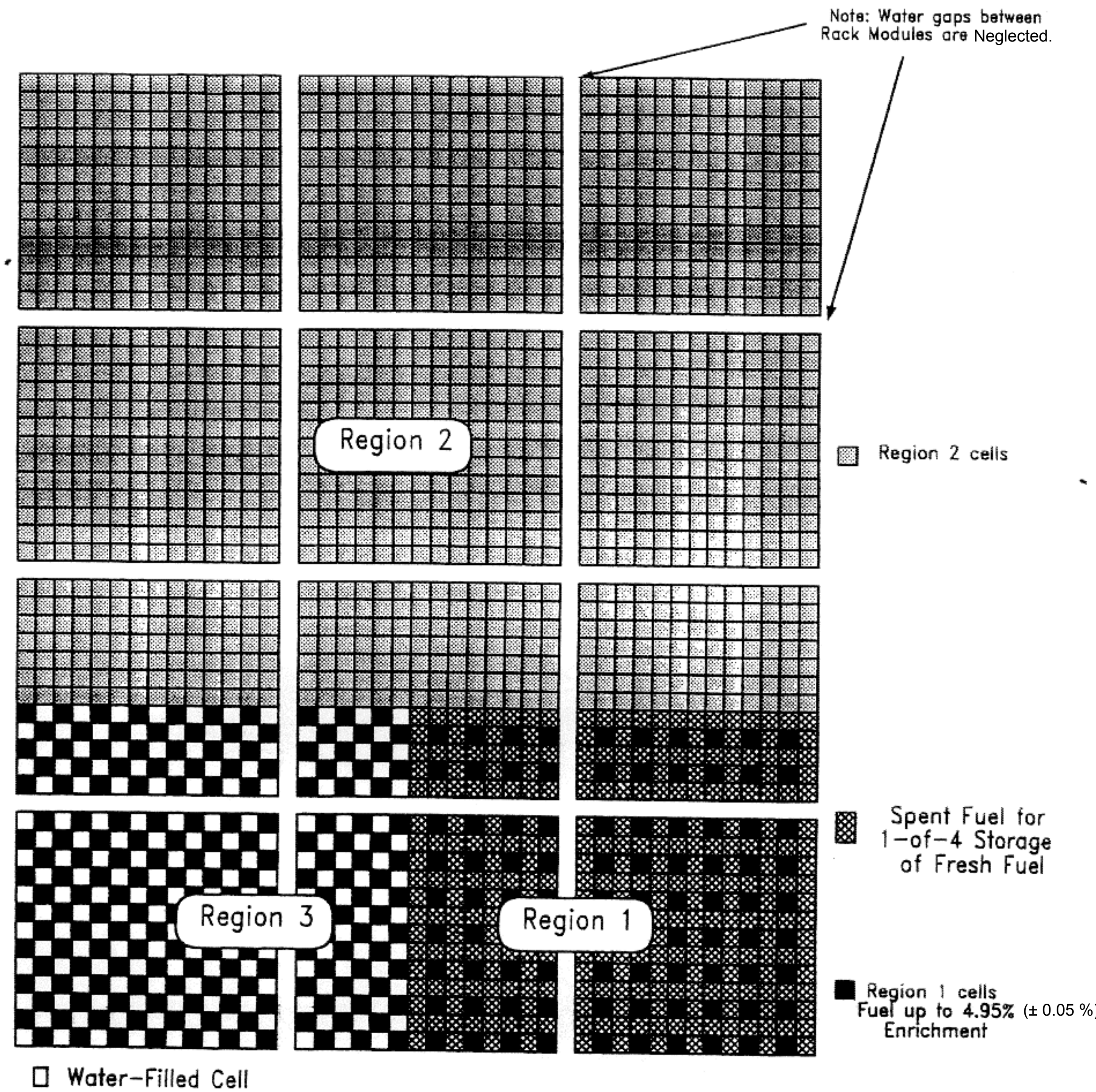
3.7.15

3 **INSERT 3**

Figure 5.6-1



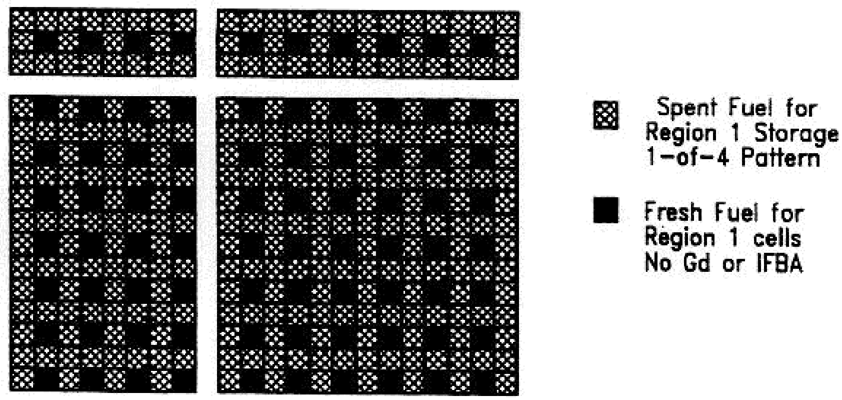
Note: The edges of the sketch above are not necessarily the edges of the pool. The Regions may appear anywhere in the pool and in any orientation, subject to the restrictions in LCO 3.7.15.

Figure 3.7.15-1
Arrangements of Fuel Storage Regions in the Sequoyah Spent Fuel Storage Pool

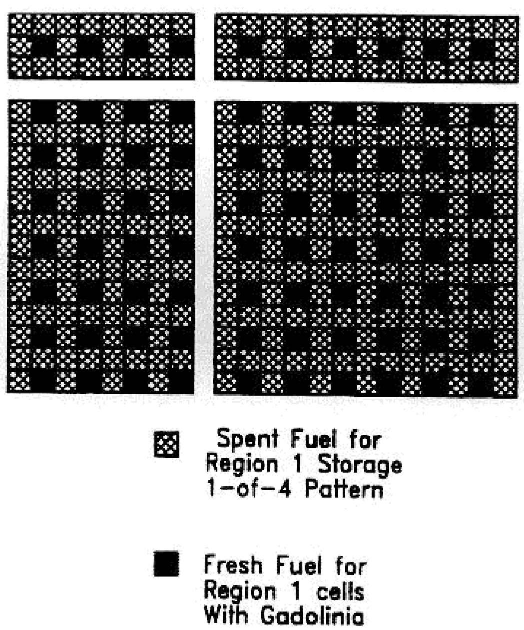
CTS 3.7.15

3 **INSERT 3 (Continued)**

Figure 5.6-1a



NOTE: WHEN CREDIT IS TAKEN FOR GADOLINIA OR IFBA RODS IN FRESH ASSEMBLIES THE SPENT FUEL ASSEMBLIES NEED NOT HAVE CONTAINED GADOLINIA OR IFBA RODS..



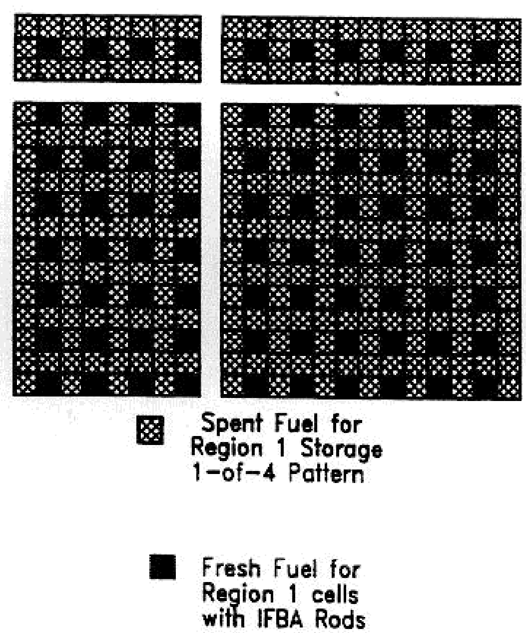


Figure 3.7.15-2
Acceptable Spent Fuel Pool Loading Patterns for Checkerboard Storage of Fresh and Spent Fuel Assemblies – Example

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3

INSERT 3 (Continued)

Figure 5.6-2

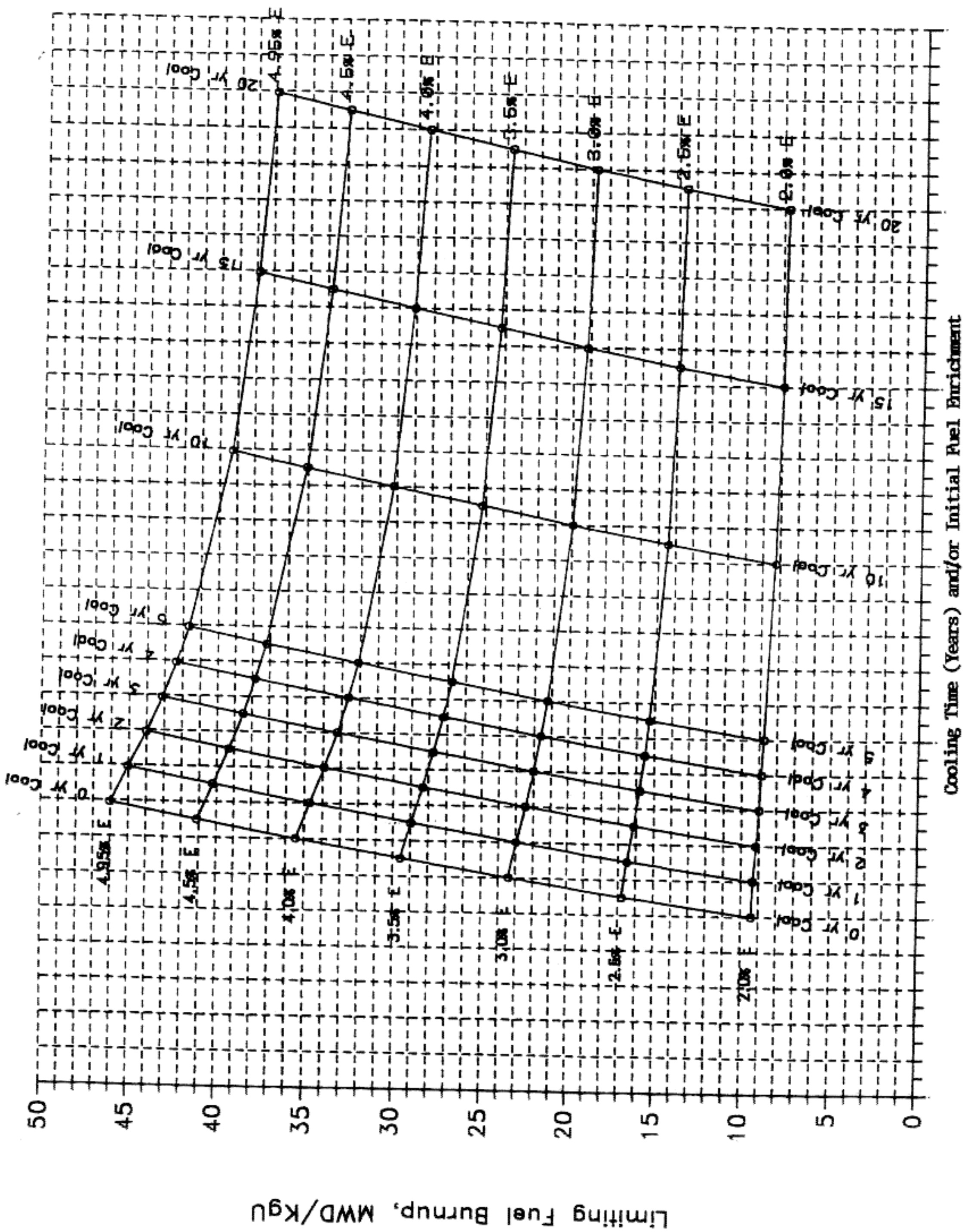

Figure 3.7.15-3
3-Dimensional Plot of Minimum Fuel Burnups in Region 1
For Enrichments and/or Cooling Times

Insert Page 3.7.15-2c

3 **INSERT 3 (Continued)**

Figure 5.6-3

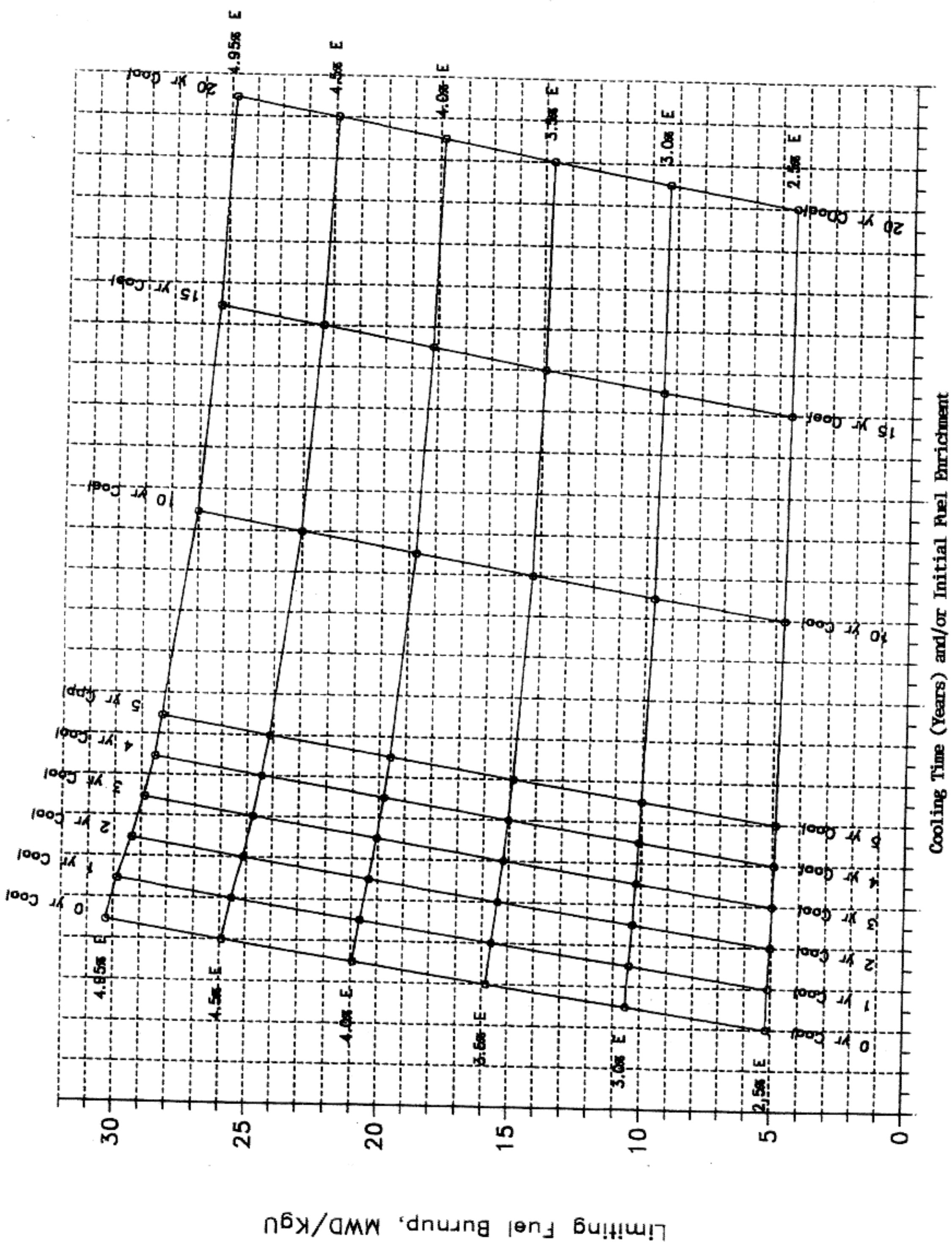

Figure 3.7.15-4
3-Dimensional Plot of Minimum Fuel Burnups in Region 2
For Enrichments and Cooling Times

Insert Page 3.7.15-2d

CTS 3.7.15

3 **INSERT 3 (Continued)**

Table 5.6-1

Table 3.7.15-1
Region 1 Storage Burnup Restrictions: Checkerboard of 1
Fresh Fuel Assembly and 3 Spent Fuel Assemblies (Without Gadolinium or IFBA Rods)

For Zero Year Cooling Time Bu (limit) = - 28.1868 + 23.0765 x E – 2.46264 x E^2 + 0.167868 x E^3
For One Year Cooling Time Bu (limit) = - 27.3317 + 22.5087 x E – 2.40586 x E^2 + 0.164207 x E^3
For Two Years Cooling Time Bu (limit) = -26.4693 + 21.8404 x E – 2.31873 x E^2 + 0.158218 x E^3
For Three Years Cooling Time Bu (limit) = -25.7404 + 21.2659 x E – 2.24287 x E^2 + 0.153018 x E^3
For Four Years Cooling Time Bu (limit) = - 25.1367 + 20.7910 x E –2.18484 x E^2 + 0.1499363 x E^3
For Five Years Cooling Time Bu (limit) = - 24.5981 + 20.3568 x E – 2.12719 x E^2 + 0.145431 x E^3
For Ten Years Cooling Time Bu (limit) = - 23.2050 + 19.2969 x E – 2.06993 x E^2 + 0.145875 x E^3
For Fifteen Years Cooling Time Bu (limit) = -22.6098 + 18.8544 x E – 2.08617 x E^2 + 0.150473 x E^3
For Twenty Years Cooling Time Bu (limit) = - 22.3017 + 18.622 x E – 2.11206 x E^2 + 0.15467 x E^3

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3 **INSERT 3 (Continued)**

Table 5.6-2

Table 3.7.15-2
Region 1 Storage Burnup Restrictions with Gadolinium or IFBA

With Gadolinium Credit: Checkerboard of 1 Fresh Fuel Assembly with 3 Spent Fuel Assemblies

Zero Year Cooling Time, 0 Gadolinia Rods
Bu (limit) = $-28.1868 + 23.0765 \times E - 2.46264 \times E^2 + 0.167868 \times E^3$
Zero Year Cooling Time, 4 Gadolinia Rods
Bu (limit) = $-28.4012 + 22.0062 \times E - 2.19268 \times E^2 + 0.143601 \times E^3$
Zero Year Cooling Time, 8 Gadolinia Rods
Bu (limit) = $-31.4262 + 22.0768 \times E - 2.38845 \times E^2 + 0.164888 \times E^3$

Note: If more than 8 Gadolinium rods per assembly, use the 8 rod correlation.

With IFBA Credit: Checkerboard of 1 Fresh Fuel Assembly with 3 Spent Fuel Assemblies

Zero Year Cooling Time, 0 IFBA Rods
Bu (limit) = $-28.1868 + 23.0765 \times E - 2.46264 \times E^2 + 0.167868 \times E^3$
Zero Year Cooling Time, 16 IFBA Rods
Bu (limit) = $-28.5048 + 21.6411 \times E - 2.15262 \times E^2 + 0.140904 \times E^3$
Zero Year Cooling Time, 32 IFBA Rods
Bu (limit) = $-31.0949 + 22.0435 \times E - 2.36088 \times E^2 + 0.162229 \times E^3$
Zero Year Cooling Time, 48 IFBA Rods
Bu (limit) = $-33.1342 + 22.3999 \times E - 2.55367 \times E^2 + 0.18082 \times E^3$
Zero Year Cooling Time, 64 IFBA Rods
Bu (limit) = $-36.0468 + 24.1492 \times E - 3.11807 \times E^2 + 0.233987 \times E^3$

Note: If more than 64 IFBA rods per assembly, use the correlation for 64 IFBA rods.

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3 **INSERT 3 (Continued)**

Table 5.6-3

Table 3.7.15-3
Region 2 Storage Burnup Restrictions

Zero Cooling Time
Bu (limit) = - 23.8702 + 12.3026 x E - 0.275672 x E^2
1 Year Cooling Time
Bu (limit) = - 23.6854 + 12.2384 x E - 0.287498 x E^2
2 Years Cooling Time
Bu (limit) = - 23.499 + 12.1873 x E - 0.305988 x E^2
3 Years Cooling Time
Bu (limit) = - 23.3124 + 12.1249 x E - 0.319566 x E^2
4 Years Cooling Time
Bu (limit) = - 23.1589 + 12.0748 x E - 0.332212 x E^2
5 Years Cooling Time
Bu (limit) = - 22.6375 + 11.7906 x E - 0.307623 x E^2
10 Years Cooling Time
Bu (limit) = - 21.7256 + 11.3660 x E – 0.31029 x E^2
15 Years Cooling Time
Bu (limit) = - 21.1160 + 11.0663 x E - 0.306231 x E^2
20 Years Cooling Time
Bu (limit) = - 20.6055 + 10.7906 x E - 0.29291 x E^2

Insert Page 3.7.15-2g